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Human Resource Development:
A Study on the Need for Self – Development of the Employee in Ministry of Science and Technology of Lao PDR

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Abstract

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The purpose of this research is to identify the need for self-development of the employee in Ministry of Science and Technology (MOST). This study have 3 objectives: (1) to measure the need for self-development level of employees in MOST, (2) to examine the relationship between the demographic factors and the need for self-development on the employees in Ministry of Science and Technology, (3) to compare opinion of employees related to the need of self-development of employees in MOST, based on the demographic factors. Quantitative study was conducted; the questionnaire was used to collect the primary data from MOST's employees a total of 248 samples.

The result shows that most of respondents were male -157 people (63.31%), most were in the age between 20-30 years old -117 people (47.18%), majority of employees were married -177 people (71.37%), most of their education qualifications were bachelor degrees -201 people (81.05%), most of the working experiences were between 5-8 years -146 people (58.87%). And the majority of their positions were Technical officer -152 people (63.30%).

The study found that the need for self-development of employee in MOST as a whole was at the highest level (average 3.64). While considering the individual aspects, the study found that the need for self-development in Information Technology was at the highest level (average 4.11), then, training

was at a higher level (average 4.06) and foreign language was at a high level (average 4.02). On the other hand, administrative, political and public administration and work plan methods were at middle levels. Based on (Leonard, 1980) theory on human resource development is defined as a means of bringing developmental activities to human resources or staff within the organization, thereby influencing behavioral change though three aspects: training, education and development. In this study the multinomial logistic regression was used, so the model permits the comparison of more than one contrast simultaneously. Logistic regression uses a log it function to link the probability of success and predictions, and applies maximum likelihood estimation method to estimate critical parameters. These findings imply that for Information technology, training, foreign language and administration, value of the likelihood ratio chi-square is at one percent probability level significant, chi-square ($P>0.01$); this specifies that this model had identically a good fit. On the other hand, for political and public administration and work plan methods the values of the likelihood ratio chi-square it is at ten percent probability level significant, chi-square ($P>0.195$); this specifies that this model had identically not a good fit.

Regarding to information technology, in the present era, IT is undergoing a rapid change and now we jumping into an industry revolution. That means we must apply the latest technology in workplace, production process, trade and services. Therefore, all the concerned employees are required to have the relevant technical training in from of continued studies, as per long and short term plans, to be at par with other countries. It is to be emphasized that the need for self-development and training is required not only the information technology sector, but required in foreign language as well as organizational and social development as well.

Keywords: Human Resource Development (HRD), Self-development, learning.

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Abbreviations

PM	**Prime Minister**
Lao PDR	**Lao People's Democratic Republic**
LPRP	**Lao People's Revolutionary Party**
MOST	**Ministry of Science and Technology**
HRD	**Human Resource Development**
GOL	**Government of the Lao PDR**
UNDP	**United Nations Development Programed**
SDGs	**Sustainable Development Goals**
NSEDP	**National Socio - Economic Development Plan**
ISTM	**Institutes of Science and Technology Management**
ASEAN	**Association of Southeast Asian Nations**
S&T	**Science and Technology**
IOT	**Internet of Things**
IT	**Information Technology**
PPA	**Political and Public Administration**
AI	**Artificial Intelligence**
WTO	**World Trade Organization**

Chapter 1: Introduction.

1.1. Background and Purpose of Research.

Human resource development has been very little promoted by neither the private nor public sectors, with the impending result that labor lacks necessary skills. Human resource development is essential to the demand - driven socio-economic development, especially for SMEs that confront changing conditions, due to the Lao PDR's integration into the ASEAN economic Integration and joining the Word Trade Organization (WTO). Usually, Human Resource Development (HRD) refers to the ability of organizations to improve their core competencies by investing in training and developing the essential competencies and skills of their employees (Park & Ugaddan, 2015). Human resource development is a strategy for human development based on well-defined strategies and sufficient resources to achieve organizational goals (Samei, 2009). Furthermore, the main factor of organizational management consisting of four M's such as: Man, Money, Material and Method. These resources are limited and have different levels in different organizations. This sort of development allows organizations to combine internal and external resources to ensure stable and continuous competition (Schwandt, 1994). Therefore, the government of Laos (GOL) is keen to bring the standard of their civil service at par with any other development nations in order to provide better service to their people. Thereby improving the quality of life of their citizens. In order to achieve this ultimate goal of national development, the government has developed many policies, plans and strategies. The government had already issued the civil service regulations which stipulate the overall guidelines. But, sad to say that, in spite of all honest desires and policy decisions made at the top levels, no substantial change could be achieved at grass root level in many years. Referred below, these regulations need to be implemented in its right sense to achieve the set objectives. This is covered under the public Decree No. 82/PM (19 May 2003)

on the civil service of the Lao PDR (an amendment of decree NO.171/PM, November 11, 1993).

The Decree No.82/PM, 2003[1] mentions that civil service has the right to participate in the training program in order to develop their knowledge and skills for performing their expected tasks. Quality of any organization is measured by the quality of its people and civil service is no exception. To a large extent, the reduction in the quality of civil service will impact their responses to the general public and hence impacts the quality of the people at large. Human resource development is the important and most required ingredient for the success in any organization. The main purpose of human resource development is to improve the performance of the individuals involved with superior knowledge, skills, and attitude (Noe, 2017). Additionally, (Guire & Jorgensen, 2011) stated that development of the employee, especially in skill sets, could take much more time than the standard structured education as this process includes education, working experience, personnel and skill evaluation and its improvement strategies, which all include better understanding of the employee themselves. If properly nurtured, each and every employee can gain new ideas and create significant changes in the organization and thus reach the ultimate goal.

Science and Technology (S&T) played an important role and is a tools for sustainable development goals. But in reality, in term of S&T implementation levels in Lao PDR from the past until now, are under very slow development. According to the world database, this was ranked and divided into 4 principles in the country on Science and Technology development as follow:

Group 1: The countries including basic research and advantage on Science and Technology;

Group 2: The countries that can use advantage Science;

Group 3: The countries that are using scientific research;

[1] Decree 82/ 2003 on public service regulations with supporting instructions. The instructions set out the responsibilities of public servants at central, provincial and district levels

Group 4: The countries that are out of date for using Technology and only very slowly developing Science and Technology (S&T Strategy Plan 2013-2020 and Vision 2030).

According to Association of Southeast Asian Nations (ASEAN) Secretariat has published its in report, in 2005, where the technological developments. The ten (10) ASEAN member countries shows that the Scientific and Technological development are as below: Group 2: The countries that can use advance science as Singapore was ranked as Number one (1) in Southeast Asia:

- Group 3: The countries that are using scientific research as Malaysia was ranked as number one (1), Thailand was ranked as number three (3) and Indonesia was ranked as number twenty-four (24).

- Group 4: The countries that are out of date of using Technology and very slowly developing on science and technology, Philippines was ranked as number thirty (30), Vietnam as forty-four (44), Cambodia as seventy-four, Myanmar as seventy five, Brunei as seventy six, Laos was last ranked at 78 countries. Referred to ASEAN and regional views (S&T Strategy Plan 2013-2020 and Vision 2030). There is a great need and necessity for human resource development within the Ministry of Science and Technology in order to keep up to date with other ASEAN countries in the world.

Therefore, Self-development allows every employee to develop their skills, knowledge and competency. For the survival of any organization in a global perspective, it requires creation of new knowledge as well as regular update of present knowledge and creation of a high technology as well as adoption of rapidly changing technology for the global competitiveness (Argote, 1999). By improving education, workers can be well prepared and better equipped to do their work efficiently and effectively, especially in all their special duties and handling additional responsibilities in their organization. To achieve any organizational goal, every organization is depending on their employee's abilities, to fully utilize their knowledge and abilities, poured in to

the organization. Therefore, this learning is an improved employee competency level to achieve the organizational performance.

(Kearney & Berman, 2018) Assert that to help the public organizations and their employees understand more on the rising citizen discontent and Challenge of using new technology, employee performance (related to the job outcome) need to be assessed periodically at regular interval such as quarterly, semi – annual or annual basis and that can be inked to the in-service training course. Employee performance can also have influence on many factors such as their working conditions, subordinate management relationship, reward system, team work and employee training. Nowadays, self-development is playing an important role in almost all organizations because of improvement in Science and Technology as well as the numerous innovations in almost all fields around us in recent decades (Science and Technology five years plan development and vision 2030). In accordance with the government plan and its requirements, the government officer in MOST should update their knowledge and competency to give necessary support while carrying out their required responsibilities. On this account, the main objective of this study was limited and generally following the below research objectives:

- To measure the need for self- development level of employees in Ministry of Science and Technology;
- To examine the relationship between the demographic factors and the need on self-development in Ministry of Science and Technology;
- To compare opinion of employees related to the need of self- development of employees in Ministry of Science and Technology based on the demographic factors.

1.2. Problem Statement.

The employees and researchers have still limited resources and more challenging, especially lacking in the skills, knowledge and other required specific skill sets. This lack of skill is significantly affecting the productivity of the civil service. One of the ways to improve this productivity is to impart self-

development for the civil service. Therefore, self-development is increasingly recognized for the purpose of improving knowledge, skills, and capacity/capability of an individual doing a specific job. Developing employee's competences in their working pattern is highly critical for improving employee performance.

To achieve this target, the Department of Organization and Personnel need to figure out and focus on the need for the civil service's constant growth and develop the necessary training accordingly. On the other aspect (Noe R. , 2010) point out that, a properly selected and implemented training always offers sufficient criteria to an individual in improving their performance as well as undertake higher responsibilities such that it always support to an improved organizational performance. Improvement performance enhancement by demonstration, with an improvement on physical structure as well as technological improvement which are considered adequate approach to realizing effectiveness and efficiency in civil service.

Therefore, this study sought to investigate and examine the need for self-development level of employees in Ministry of Science and Technology and also to compare opinion of employees related to the need of self-development in MOST based on the demographic factors.

1.3. Research Question.

1) What subject are the most required for the self-development need in Ministry of Science and Technology?
2) Is there any relationship between demographic factors and self-development in Ministry of Science and Technology?
3) What are the perception of employee to develop self-development among the employees in Ministry of Science and Technology?

1.4. Significance of Study.

Development of an employee is a comprehensive process of enhancing the ability and competencies of an individual to perform all the necessary responsibilities effectively and to realize their potential to the maximum extent.

The development of human capital is both a purpose and a continuous process in the Ministry of Science and Technology in Laos. The study may assist an administrative task, especially for the Department of Organization and Personnel, on how to develop an efficient and fulfilling training program. These training programs are expected to develop the required knowledge, skill sets and improve the attitudes of staff at all levels. Developing employee's competencies are critical for their performance, especially to enhance their performance effectively, efficiently and competitively and this can be infused in them during self-development. This study aimed at investigating the need for self-development of the employees in Ministry of Science and Technology in Lao PDR. More specifically, the study is aimed to measure the need, taking into account the opinion of employees related to the need, to understand whether it is beneficial to the employee and employer or not.

1.5. Civil Service Structure of MOST.

Since 2000's, the Government of Lao PDR defined Science and Technology sector as one of their strategic plan for converting the industry into a modern one. After the 9th congress of the Lao People's Revolutionary Party, Ministry of Science and Technology (MOST) of the Laos was established on the 28th September 2009. Government of Lao has conducted administrative reform and upgraded the National Science and technology Agency to Ministry of Science and Technology. This change emphasizes the practical need and the growing importance of Science and Technology sectors in Laos. The change also illustrates the importance of this sector in socio-economic development of the country amidst international integration. In 2011, S&T was assigned as the representative body of the government for research and development and macro management in the fields of science, technology and Innovation, intellectual property standardization and measurements, nationwide. The ministry was led by the Minister and four Vice Ministers. MOST have eight departments, two offices and four Institutions. Excluding at the local level, there are eighteen

Science and Technology Divisions at the provinces level. After the 9th (Figure2).

The civil service in Lao PDR (GoL, 2003 ha) is classified into 5 grades. Each grade has 15 steps, with corresponding salary indices. This classification excludes high-ranking officers (Vice-Minister and above), military, police, employees of State-owned enterprises and State employees working on a contractual basis. Civil servants at grades I and II are ‘‘Administrative Affairs Assistants’’, Civil servants at grade III, IV and V level are “Technical Officers”. Each grade is divided into a further 3 levels, based on the level of education attained and seniority in the civil service.

Table 1.1: Classification of Civil Servants Ranking of Lao PDR

Grade Steps	Level 1					Level 2				Level 3					
V	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
IV															
III															

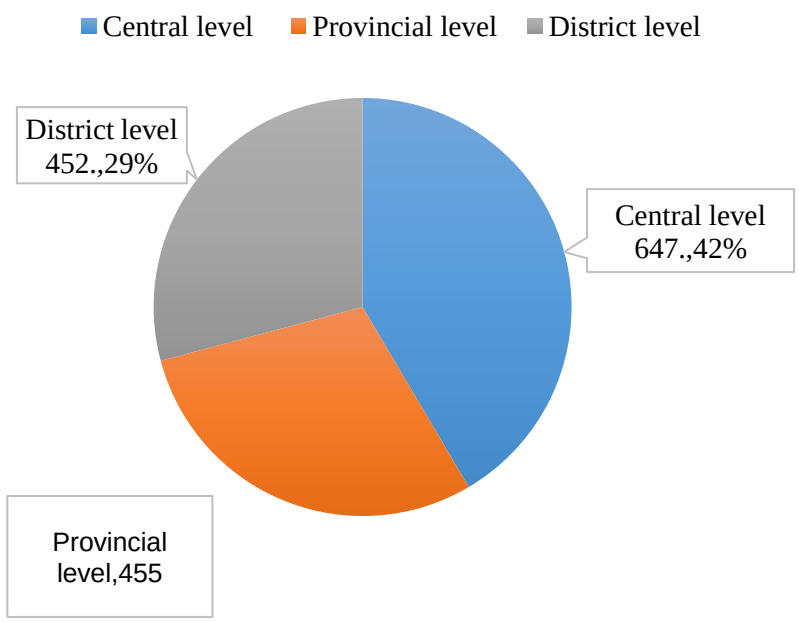
Classification of salary schedule.

They are based on the academic degree, profession or the job descriptions.

1) Grade 1: General education;
2) Grade 2: Professional school of preliminary qualification;
3) Grade 3: Certificate from the professional school of the high qualification of the study period shall be less than 3 years;
4) Grade 4. Certificate of PhD, High graduate diploma, master degree; Graduate diploma, bachelor degree or equivalent and certificate from school of high qualification, the study period of which are less than 3 years;
5) Grade 5: Persons who ended at the function of high leadership and who surpassed the grade 4.

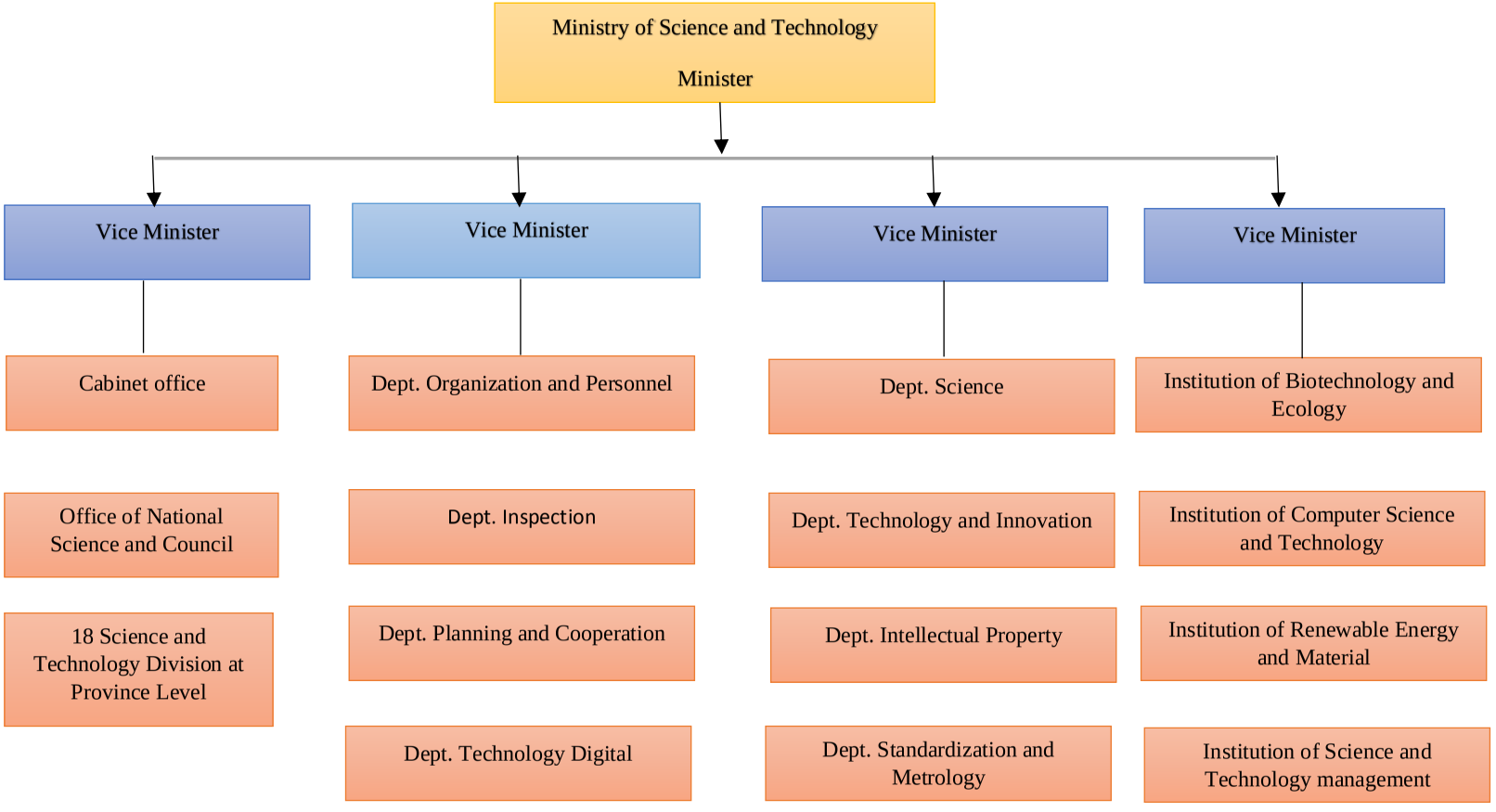
Since the growth of the national economy, the total numbers of government officials are increasing steadily, especially in recent years. According to the statistics from 2017-2018, the total number of both central and local government officials of the Ministry of Science and Technology was 1551 peoples, female: 580 and male: 971. This number is further divided into sub levels, i.e. in the central level 647, female: 293 peoples, male: 351 peoples, in local level (province 455 peoples and district 452 peoples).

Figure 1.1: The Proportion of Central and Local Official of Ministry of Science and Technology



Source: Designed by the author based on database conduct by MOST 2018

Figure 1.2: Organization Chart of the Ministry of Science and Technology in Lao PDR



1.6. Definition of Key Concepts.

Requirements: Refers to a purpose, dream, and a desire to do something, to act in the way of self-indulgence;

Development: Refers to a process that progresses slowly through a series of steps by steps that can be enhanced, improved, and more appropriate, or progresses to a rich and satisfactory level, and also development by changing from something to a happy and prosperous one (Yorks, 2005);

Self-development: It means that a person try to strives, wisdom, and sharing knowledge with others, This development will be done and enhancing your knowledge, skills, experience in self-employment, ability and capacity while enhancing their skills to perform their tasks (Werner & Simone, 2012);

Staffing: Refers to staff under the Ministry of Science and Technology, from the difference level start from technical up to the administrative who acts in the Ministry of Science and Technology (Heneman & Heneman, 1994);

Job expertise: Refers to staff experience which gained from continuing education, training and personal development so that the personnel within the organization can perform their assigned tasks better.

Continuing Education: Means that staff continuing education of staff that helps the employee to gain greater knowledge, technical skill, professional and career development, improve their skill and attitudes in order to increase employee efficiency in job performance, continuing the study within the country and abroad, both inside and outside the system, for the ultimate purpose of gaining more knowledge and applying the same in their life.

Training: Refers to staff under Ministry of Science and Technology, who has the right to attend specialized training, seminar, to increase their knowledge, skills and experience in carrying out their duties effectively.

1.7. Research Assumption.

This study is considered an essential one because of the realistic assumption that the problem exists in the area of knowledge and skill development. Self-development is not only cause improvement of the

individuals concerned, but it will improve the efficiency of civil service as a whole also, by updating their skill sets, knowledge, and at the end, it will add more value to the society. This sort of development will guarantee the organizational growth as well. The study assumed the respondents would be available to fill the questions truthfully and also hopefully in time to make the study effective.

Therefore, self-development is considered extremely necessary for the public sector in order to produce a high quality of service from the civil service. By investing in human capital and making the organization effective, the civil service can be made innovative, competent and hence strengthening and achieving the set organizational goals

Chapter 2: Literature Review.

2.1. Self-development.

According to (Robbins & Hunsaker, 2012) states that self-development theory refers to self-existing of development skill and self-capacity. The reason why people need self-development is that it strive to improve them for a better life.

According to (Pedler & Boydel, 1994), self-development involves the qualities cultivated for development, virtues, habits, abilities, attitudes, thoughts, perceptions, etc. Self-perceptions help them become socially aware and self-reliant. Self-development is a long-term process of individual success, external environment only help as a material to promote self-development, and self-development should be central to the needs and goals of one's life.

As studied and mentioned by (Dorrell, 1993) and (Fagley, 2005), self-development is a personal development of the developer himself/ herself, who is which responsible for the learning process to reach his or her goals, self-development emphasizes self-empowerment. Self-development is an individual development that differs from unit development. As such, self-development is self-responsible also and hence he/she must feel free to develop whenever and whatever possible/required

To Summarize, many researchers have similar views regarding self-development as the individual's striving to develop self-knowledge and growth, which can be done by: self-education and sharing of knowledge, experience and self-knowledge. This development need be done in whatever forms possible to reach the ultimate goal and aim to increase the knowledge and ability of the company in time, with a positive attitude towards its performance.

2.2. Significance of Self-Development.

The significance of self-development refers to those activities that improve staff's abilities of developments and talents. Self-development is also of high importance for all people who want continuing education, and prefer to have a higher position in their workplace. This is more relevant if he/she want

to gain more productivity, to be more satisfied, and to become happier while working in the organization (Mankin, 2009). Self-development is very important to all who want to succeed in all aspects. A person who does not develop himself or herself will be unsuccessful in his/ her life or work (Moorby, 1999).

According to (Lim, Mathis, & Jackson, 2010), self-development is one of the leading avenues for organizational development. (Cortada, 1998) states that helping employees is of high importance for self-development, and this is considered as a significant factor that can enhance their life planning, self-management and efficiency in their work.

As a result, self-development is significantly important to the staff and in the organization, which allows individuals to get good physical, emotional, and idea development. As a result, they gain a quality life happily in society, successful on the job, and bring better efficiency to the organization.

2.2.1 The Concept of Demand Theory.

Human needs always include the physical and emotional needs. Scholars in this sector believe that the driving force of people, especially employees of an organization, stems from their unsatisfied needs. As a result, every organization needs to manage people efficiently to fill employee's needs (Im, 2017). On the other hand, (Kessels, 2007) indicated that, human lack of abundance in the hobby and environment, which sometime is desirable, sometime is limited, but many times desperate.

- Sociological needs: Human beings are part of a society, the psychologist state that human beings depend on having relationships with other people through communication and sharing their experience with others. For example, since we were born, we learn how to speak to parents and other relatives. Thereby learning the necessary language as well as learning how to respond in different situation-these knowledge are absolutely necessary to survive in the society.

- Psychological Needs: In general human have the same need, human mind has the same process and functional working such as: learning, instinct,

affection, motivation and others. Motivation is considered to be the basic need, which plays an important role in understanding human behavior.

While referring to many recognized documents, human needs can be mainly divided into three aspects such as: (1) Biological need is related to the pursuit of 4 factors of living; (2) Social needs related to the promotion of intercultural relationships that promote cultural harmony and social harmony; (3) Higher need there will be incentives for living and building a better society.

In general, the need is a condition of human being who lacks something, which can be accommodated or a missing part, which could bring you a as a balance in life. Human need is a motivation and subsequent winning that depends on the different needs of the individual.

2.2.2 Maslow's Hierarchy needs.

According to (Maslow, 1970) briefly explains that individual's contribution conceptually categorized human needs into five groups, and then he put them in order. According to his theory, a higher need will not appear until the lower need is fulfilled. Once a need is fulfilled, a lower level need will not appear anymore, which means the order of the hierarchical need is irreversible. Perhaps, he most famously attempted to identify and categorize human needs in a systematic way:

- Physiological needs: food, shelter, clothing
- Safety Needs: being free from threat
- Love and Ownership (Belongingness and Love)
- Honors and Pride Needs (Self-esteem Requirement)
- Self-actualization

Therefore, The different levels of needs on Maslow's hierachy are discussed as follow:

(1) Physiological needs.

These are biological needs which consist of the need for oxygen, food, water and a relatively constant body temperature. They are the strongest needs

because if a person were deprived of all these, it is these physiological ones that would come first in the person's search for satisfaction.

(2) Safety needs.

When all physiological needs are met and are no longer controlling thoughts and behaviors, the need for security will become. While adults have little awareness of their security needs except in times of emergency or periods of disorganization in the social structure (such as widespread rioting), children often display the signs of insecurity and the need to be safe.

(3) Sense of Needs for love, affection and belongingness.

When the needs for safety and for physiological well being are satisfied, the next class of needs are for love, affection and belongingness can emerge. Maslow states that people seek to overcome feelings of loneliness and alienation. This involves both giving and receiving love, affection and the sense of belonging.

(4) Needs for esteem.

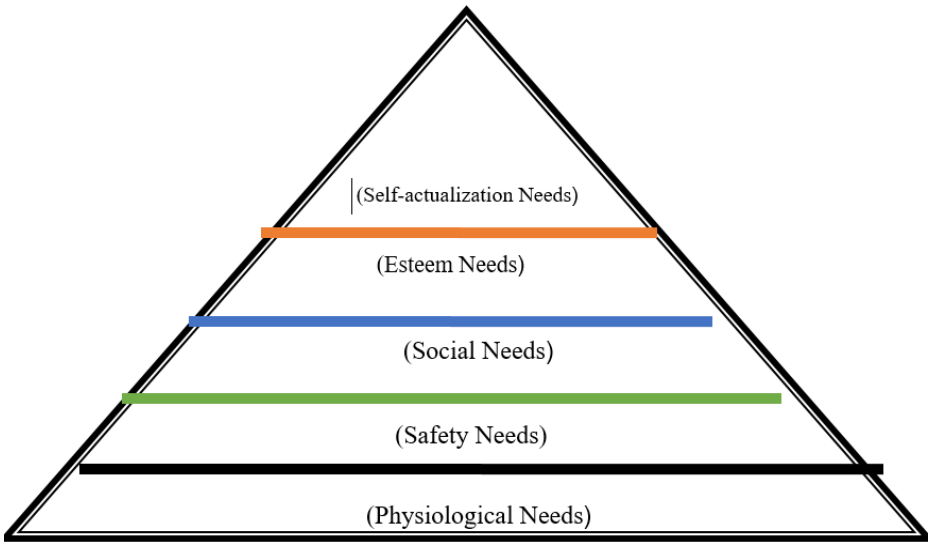
When the first three classes of needs are satisfied, the needs for esteen will become dominant. These involve needs for both self- respect, and respect from others. When these needs are satisfied, the person feels self-confident and as a valuable person in this world. When these needs are frustrated, the person feels inferior, weak, helpless and worthless.

(5) Need for self actualization.

When all the foregoing needs are satisfied, then and only then are the needs for self actualization get activated. Maslow describes self-actualization as a person's need to be and to do what the person was ''born to do'' A musician must make music, an artist must paint, and a poet must write. These needs make themselves felt in signs of restlessness. The person feels on an edge, tense, lacking something; in short, restless. If person is hungry, unsafe, not loves or loved or accepted, or lacking self-esteem, it is very easy to know what the person is restless. However, it is not always clear what a person wants when there is a need for self-actualization.

The aforementioned theory may be applied to the roles of organizational cultural and human resource management in improving employee's performance despite some criticism of the theory. While some research has shown support for Maslow's theory, others have not been able to substantiate the idea of a needs hierarchy that is considered to be influenced by western culture, and thus cannot apply to all scenarios (Thompsen, 2010)

Figure 2.1: Figure 3: Maslow's hierarchy of needs



Source: https://moneyhub.in.th/article/maslows-hierarchy-of-needs-and-success/

2.2.3 McClelland's Theory of Needs.

(McClelland, 1987) Has emphasized on the "Individual human theory needs" or (the three-need theory). The theory divided into 3 principles:

- Achievement Needs: It is the theory of (learned) needs, that motivation to do something which will lead you to success, or reach the goal. However, (Rothwell & Kazanas, 1994) argued that it not only motivate individuals but also include the most significant human goals;

- Power Needs: Motivation created someone to do something in a proper job depending on their own direction;

- Affiliation Needs: It is the desire starting from friendship and close to good relationship with others.

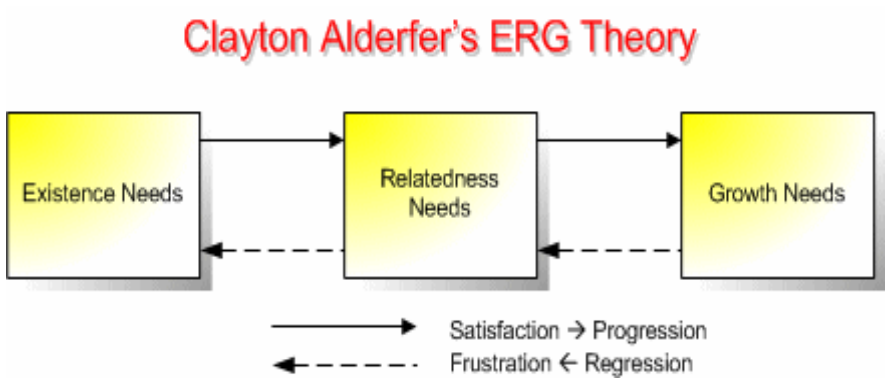
Summary, according to a study by McClelland's Theory of Needs, it is found that those who are more successful are those who are trying to do in differentiate themselves from others, trying to get along with the situation that will allow them to have an opportunity to take responsibility and to succeed in self-examination. This aspect is called motivation for individual success or need.

2.2.4 Claton Elderfer's Theory of Needs.

(Alderfer, 1972)Updated Abraham Maslow's theory [http://www.novabizz.com] by allocating only three levels of needs ERG:

- Existence Needs refers to the physical and safety requirements of life;
- Relatedness Needs refers to the needs related to interpersonal relationships in the workplace and other situations (social needs).
- Growth Needs is an internal need for self-development to grow and use your full potential, seeking opportunities to overcome a new challenge.

Figure 2.2: Clayton Alderfer's level of needs theory.



2.3 Human Resource Development Theory.

According to (Dorrell, 1993) defines human resource development as long term and sustainable development. HRD is the framework for helping employee develop their knowledge, skill, abilities and also HRD is management of activities that attract, and maintain ability of the ability of a person or employee to perform their tasks effectively in organization, including into corporate excellence by combination of needs, prosperity and the main development as personal development within the organization.

(Nadler L. , 1980) Mention that human resource development as a means of bringing developmental activities to human resource or staff within the organization and influencing of behavioral change. Therefore, HRD activity divides into three (3) groups as below:

2.3.1 Training.

(Werther & Davis, 1993) Define that training creates a sense of belonging for their employees. They will become more willing to develop themselves for further career development in their organization. (Rowley, 1998) argued that an effective training will not only equip the employee come up with most valuable knowledge and skills needed to complete their jobs but it also assist to achieve the objectives of the organization by supporting employee satisfaction.

(Snell & Morris, 2019)Training constitutes the basic concept in human resource development. It is concerned with developing a particular skill to a desired standard by instruction and practice. Training is a highly useful tool that can bring an employee into a position where they can do their job correctly, effectively, and conscientiously. Training is the act of increasing the knowledge and skill of an employee for doing a particular job.

2.3.2 Education.

By well preparation of the employee and ready for future assignment of an organization, education is different from the training programs. Because of education is considered as the future preparation. For example, prepare for job promotion, new appointment at other place and etc. Education is a long term

plan but an organization should clearly identify and recognized the minimum educational qualification of an employee which should not affect the organization's financial resource. Therefore, education is a type of employee Investment and ready for future assignment.

2.3.3 Development.

(Swanson, 1995) Emphasized the need for development, in growing organization, in this ever changing environment. Development is directly related with those programs providing for the purpose of learning, sharing information and expanding own experience. So, that such employees are ready to grow and become flexible for organizational needs. Nevertheless, (Bacharach, 1997) mention that human resource development referred by its 4 aspects such as: capacity, equality, empowerment and sustainability.

As a summary, human resource development need to be considerate as individual or employee want for self-development, in order to gain their knowledge, skills and abilities, by themselves or by their organization. It is dependent on the availability of an appropriate positive environment and/or necessary support by the Organization. Self-development activities can be categorized into three (3) groups such as: Training, Education and Development as below:

Table 2.1: According to Nadler idea: The Comparison of difference between Training, Education and Development.

Activities	Emphasis	Result	Resource	Rank
Training	Current assignment	Currently	cost	Low
Education	Future assignment	In due times	Short term Investment	Medium
Development	The change of future organization	Sometimes in future	Long term Investment	High

Source: saythip Lattanavieng ,2010 Page 10

2.4 Human Resource Development Model.

(Benington, 2009) Stated that human resource development is a means of making better life for everyone and that it plays an important role for

organizational development and achievements goals and that it needs to be studied whether to implement it in a base until or at an organizational level. There are difference methods of implementing HRD in every organization such as: training, Seminar, education, career development, self-development and so on. Those types of training need to be developed for individual learning, better work efficiency and to be a successful in organization.

2.4.1 Training.

While setting the overall goal of the organization, Training and Development (T& D) Processes are required to be defined and implemented as this generates benefits not just to the organization but also to the individuals concerned. For the organization T & D leads to improve profitability while cultivating the culture of more positive attitudes towards profit orientation. For the individuals T & D improves job knowledge as well as self-development while also helping in identifying the goals of the organization T & D is defined as the planned learning experiences that teaches employees how to perform current and future jobs.

Training is a process of developing knowledge, skills, and attitudes. According to (Andersen & Moynihan, 2016), training is a planned program designed to improve performance and efficiency at the individual, group, and organizational levels. Additionally, (Ferris & Rowland, 1990) has made analysis on the role of training which provided into two (2) types such as: general training and specific training.

- General Training: This training does not focus on any specific task, but covers wide range of knowledge, activities and enrichment programs. So the participants can utilize this sort of training for their own benefit and is very much useful to any individual.

- Specific Training: This specialists training plays an important role and related to the employees responsible within each unit or organization, this type of training will only serve one specific unit. However, if the participant is relocated to another type of job, this type of training may not be advantageous to the organization.

2.4.2 Education

According to National Strategy's Ministry of Education and Sports, and according to Vision 2025 and in accordance with other Ministries, Human Resource Development must invest on HRD as a priority, for the purpose of improving on poverty reduction, as a national policy. In a broad sense, it is a process of learning from one's birth until death, the process of living, which includes research and refinement of knowledge and all experience of all ages (children, adults, and the elderly) by learning from home, school, and different environment and from a society. In other words, education refers to the accumulation of experience and knowledge gained from both inside and outside of school, academia, and out of practical experience. Education is divided into three categories: *formal education*, *non-formal education* and *informal education*, or in other word, called "lifelong education".

- *Formal education:* A study conducted in several educational institutions such as schools, colleges, universities and other institutions that high standard of grade and specific curriculum, covering years of study, including making use of teaching materials, support personnel, and qualify of teachers.
- *Non-formal education:* It is an education which is offered to the people needs who do not have the chance to continue their study or may have a low-level of education, but leave the school before competing their graduation.
- *Informal education or lifelong education:* It is self-study in daily life, learning from their experience and their environment, making it as their profession, with an improved attitudes toward study, skills, values and experiences gained from living for life survival.

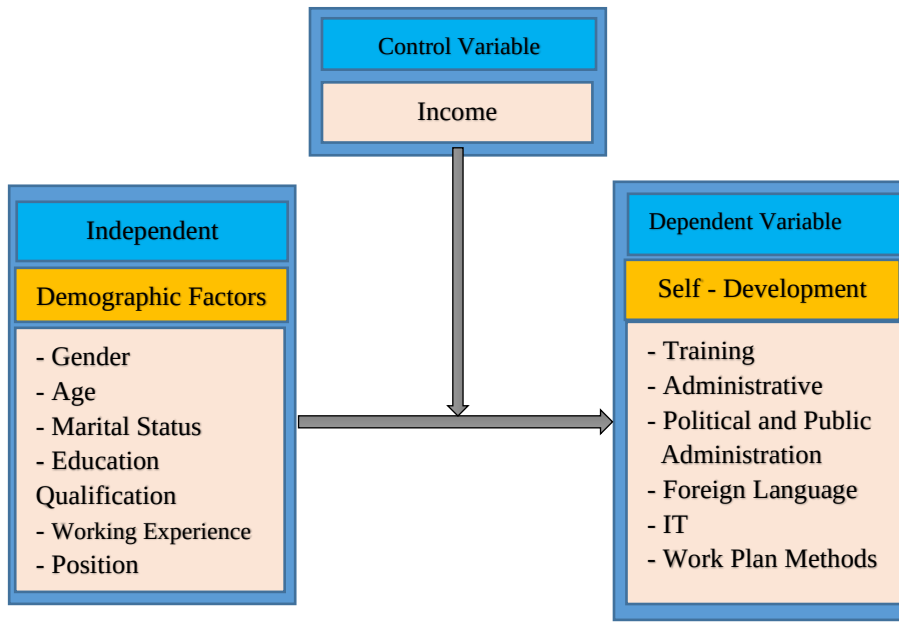
Chapter 3: Research Methodology

3.1. Research Design

In this chapter, primary quantitative data was used as the main source for this study. Research methodology to be described, major research are using a quantitative survey. (Orodho, 2004) Defined that research designs are used preliminary and also exploratory studies, gathering information, present and then interpretation. Primary data was collected through questionnaires, while secondary data was collected from various sources such journals, articles and books.

3.2. Conceptual Framework.

Figure 3.1 : Conceptual Framework



Conceptual framework of this study was based on the notion of the demographic factors which was the Independent variable. The need for self-development of the employee in MOST was the dependent variable and the

income as control variable. Because the employees may be restricted or stopped from undergo in-service training by the organization, due to lack of financial resource, to facilitate for the training programs. Therefore, the employee's job entry skill and the competences were conceptualized. In this study the entry skill will be determined from the nature of self-development for the purpose of development of employee and also for the performance indicators for the employee.

3.3. Research Question and Hypothesis of study.

A. Research Question

1. What subjects are most required for the self-development need in Ministry of Science and Technology?
2. Is there any relationship between the demographic factors and self-development in Ministry of Science and Technology?
3. What are the perception of employees to develop self-development among the employees in Ministry of Science and Technology?

B. Hypothesis of Study

The employees of MOST have different personal factors and different needs for Self-development.

H1: If the employee is *a male*, there is higher need of self-development level in training;

H2: When the employee is *young*, there is higher need of self-development level in administration;

H3: If the employee is *married*, there is higher need of self-development level in political and public administration;

H4: If the employee is holding a bachelor *degree*, there is higher need of self- development level in foreign language;

H5: when the employee's total *working experience is low*, there is higher need of self- development level in information technology (IT);

H6: If the employee is in a *technical position*, there is higher need of self-development in work plan methods);

3.4. Sample Design.

This is a listing of all staff in Ministry of Science and Technology which includes civil service officers from the most junior to senior grade. The sample is mainly from headquarter office, totally of 14 sections, this does not include the Department of Science and Technology at the province level. This study was focused on the sample size of 246 peoples from the central level and will have the distribution in different Department which are under the Ministry of Science and Technology of Laos PDR.

3.5. Target Population

The population was randomly selected to the staff from the offices, departments and institutes under the Ministry of Science and Technology. In totally 248 people from the central level and will be distribution in different sections out of a total of 647 employees. By using (Taro Yamane, 1967) formulation, the sample size is calculated, using as a percentage, at least 95% significant and the acceptable sampling error.

Taro Yamane Formulation:

$$n = \frac{N}{1 + N(e)^2}$$

n = the Sample Size

N = the Population size 647

e = the acceptable sampling error 95% or α = 0.05

By following the formula can be calculated as follows:

$$n = \frac{647}{1 + 647(0.05)^2}$$

$$n = 247.18 \approx 248$$

3.6. Selection

From the above formulae the computations can be calculated in the sections as required in Table 3.1 as follows:

Table 3.1: Determination of sample size according to population.

No	Offices, Departments and Institution	No.of Employee	Sample group (People)
1	Cabinet Office	60	23
2	Department of Personnel and Organization	35	13
3	Department of Inspection	22	9
4	Department of Planning and Cooperation	45	17
5	Department of Science	31	12
6	Department of Science and Innovation	45	17
7	Department of Intellectual Property	59	23
8	Department of Standardization and Metrology	82	31
9	Department of Technology Digital	38	15
10	Institution of Biotechnology and Ecology	72	28
11	Institution of Renewable and Energy	47	18
12	Institution of Computer and Electronic	45	17
13	Institution of Science and Technology Management	16	6
14	Office of National Science and Council	50	19
Total:		647	248

Source: Field work,2019

3.7. Data Collection Procedure

This study will apply the use of structured questionnaire that will be distributed to the selected respondents to be filled out. The questionnaire, with their full name, were sent to the selected respondents in Ministry of Science

and Technology through given to them directly, to acquire the necessary information. Using questionnaire is the best tool to collect data for analyzing the need for self-development on employee in Ministry of Science and Technology of Lao PDR. The procedure followed was as below:

Part 1: General information of employees, including gender, age, educational qualification, marital status, working experience and position.

Part 2: The need for self-development on employee level within the Ministry of Science and Technology.

Part 3: An Open Questionnaire, asking the comment and issues on the employees, asking to specify the obstacles, problems and suggestions for solving their own personal development within the Ministry of Science and Technology.

3.8. Data Analysis Method

In this study, the data will be analyzed using descriptive statistics. After collection of all data from the instrument, the researcher will study from the collected data relevant to the research question where the objective is clear and shall be retained. All data will be analyzed by using SPSS (Statistic Package for Social Science) version 2.0

- Section 1: General Information of the respondents by using descriptive statistics such as frequency and percentage which shows as results in a table and graphs.
- Section 2: Descriptive statistics like standard deviation, mean, rating scale by (Likert, 1932) which divided into five scale as below:

Strong Disagree	Disagree	Neutral	Agree	Strong Agree
1	2	3	4	5

- Section 3: Open questionnaire on future plan and how to solve the problem within the ministry of Science and Technology. For this interpretation, Likert Scale was defined as the means value and interpreting it as follows:

Score	Means
4.21 - 5.00	The highest level
3.41 - 4.20	High Level
2.61 - 3.40	Middle Level
1.81 - 2.60	Low Level
1.00 - 1.80	The Lowest Level

❖ Descriptive statistically cover a range of need such as: Mean, standard deviation, minimum, maximum. Then, correlation bivariate analysis between gender, age, marital status, working experience, position (as an independent variable), training, administrative, political and public administration (as a dependent variable) and test and income as the control variable in this study.

❖ Multinomial Logistic Regression.

The Multinomial Logistic Regression Model permits the comparison of more than one contrast simultaneously. In both Multinomial Logistic Regression and ordinary logistic regression, the impact of predictor variables is explained in terms of the odds ratio. In logistic regression, the categorical response has only two values. Generally, 1 is for success and 0 for failure. Logistic regression uses a logit function to link the probability of success and predictors, and applies maximum likelihood estimation method to estimate parameters.

The multinomial logit compares multiple groups through a combination of binary logistic regressions. This allows each category of the dependent variable to be compared to a reference category. Normally, the category with the highest numeric score is chosen as the reference category. As a general rule, when there are, say and possible levels of the dependent variable, the Multinomial Logistic Regression Model will consist of n–1 equations. The logistic regression extends to models with multiple predictors. For example, the model with $\pi(x) = P(Y=1)|x1, x2, \ldots..,xk)$ is given by:

$$logit(\pi(x)) = \log\left[\frac{\pi(x)}{1-\pi(x)}\right] = \alpha + \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_p x_p$$

The parameter βi refers to the effect of xi on the log odds that Y=1, controlling the other xj. For example, exp (βi) is the multiplicative effect on the odds of a 1-unit increase in xi, at fixed levels of other xj. A predictor can be qualitative, using dummy variables for categories. The alternative formula, directly specifying π(x), is given by

$$\pi(x) = \frac{\alpha + \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_p x_p}{1 + \exp\,(\alpha + \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_p x_{p)}}$$

Also, if there are independent observations with p predictors and the qualitative response variable has k categories, then one of the categories must be chosen as the reference level, and all other logits in the multinomial case will be constructed relative to this reference level. Pretty much, any category can be selected as the base or reference level. Since there is no ordering, we would select category k as base level. In this case, πj will denote the multinomial probability of an observation falling in the category. The multiple logistic regression model below will now depict the relationship between this multinomial probability πj and the p predictors X1, X2, …..,Xp.

$$\log\left[\frac{\pi_j x_i}{\pi_k x_i}\right] = \alpha_{0i} + \beta_{1j} x_{1i} + \beta_{2j} x_{2i} + \cdots + \beta_{pj} x_{pi}$$

Where, j = 1, 2, …..,(k-1); i = 1, 2, …, n. Since$\sum_j \pi_j(x) = 1$, the model reduces to

$$\pi_j(x_i) = \frac{\alpha_{0i} + \beta_{1j} x_{1i} + \beta_{2j} x_{2i} + \cdots + \beta_{pj} x_{pi}}{1 + \sum_{j=1}^{k-1} \exp\,(\alpha_{0i} + \beta_{1j} x_{1i} + \beta_{2j} x_{2i} + \cdots + \beta_{pj} x_{pi})}$$

Here πj(x) = Prob (Y = j | x1,x2,…,xp) at a fixed setting x for predictors.

Chapter 4: Presentation of Findings and Discussions

As mentioned in chapter four, "A study on the needs of self-development of the employee in the Ministry of Science and Technology". The purpose is to identify the need for self-development on the employee level in the Ministry of Science and Technology; to examine the relationship between the demographic factors and the need for self –development on employees in Ministry of Science and Technology; to compare opinion of employees related to the need of self-development of employees in MOST base on the demographic factors. The researchers used questionnaires for data collected form of 248 respondents. This was facilitated by Statistical Package for the Social Science (SPSS) version 2.0 for analysis. The results of data can be summarized as follows:

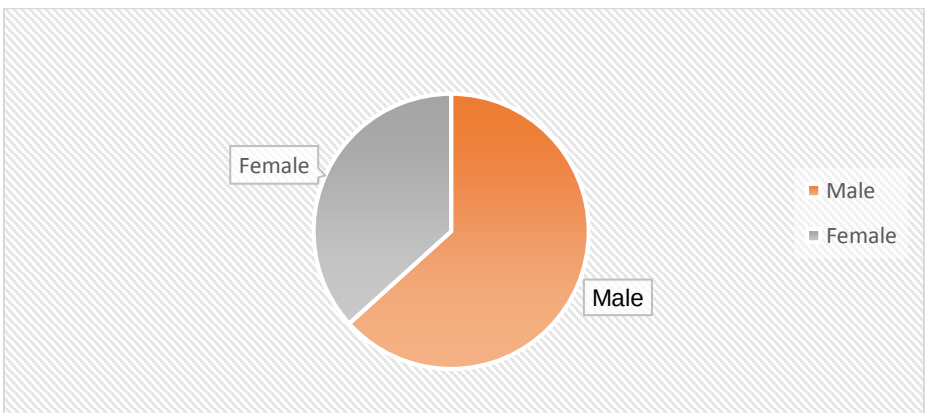
4.1 Demographic Analysis

4.1.1 The Result

The demographic data shows that the frequency and percentage of the answer, the result shows as below:

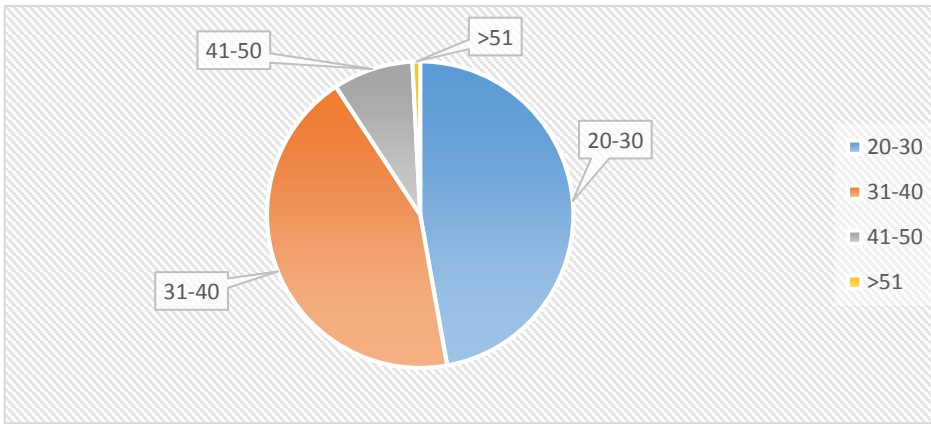
Gender of Respondents: with a total of 248, most of the respondents are males 157 (63.31%) while females 91 respondents (36.69%) respectively. This indicated that most of the employees that worked in Ministry of Science and Technology are males.

Figure 4.1: Respondents' Demography (Gender)



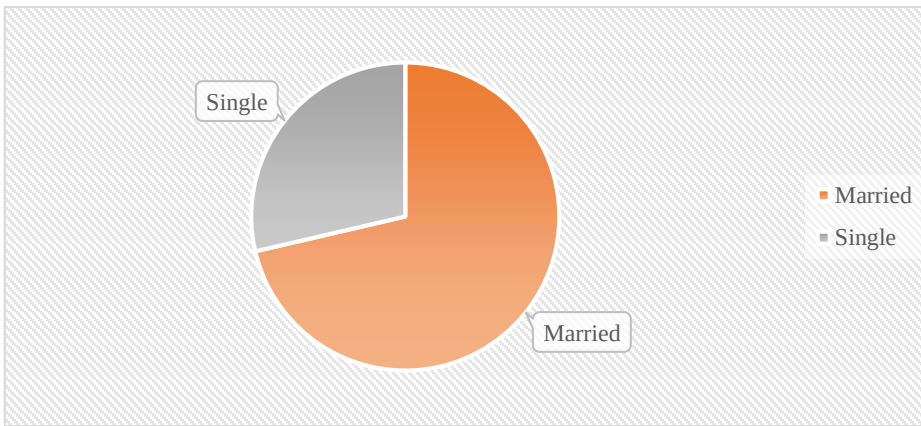
Age: The highest percentage of the respondents' ages were between 20-30 years old group with total number of 117 (47.18%), then ages from 31-40 years with total number 108 (43.55%), ages from 41-50 years were 21 (8.4%), and ages above 51 years were 2 (0.81%). This indicates that the average of ages of the employee are more than 51 years old less than 20-30 years.

Figure 4.2: Respondents' Demography (Age Group)



Marital Status of Respondents: Majority of respondents were married status with a total number of 177 (71.37%), employees were single 71(28.63%).

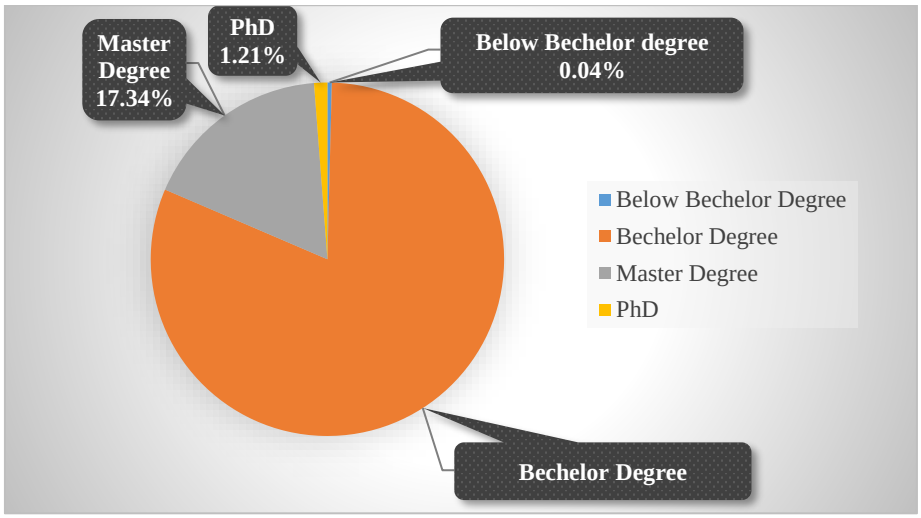
Figure 4.3: Respondents' Demography (Marital Status Group)



Education Qualification: Most of the respondents were holding Bachelor degree with a total number of 201 (81.05%), the master degree 43 (17.34%),

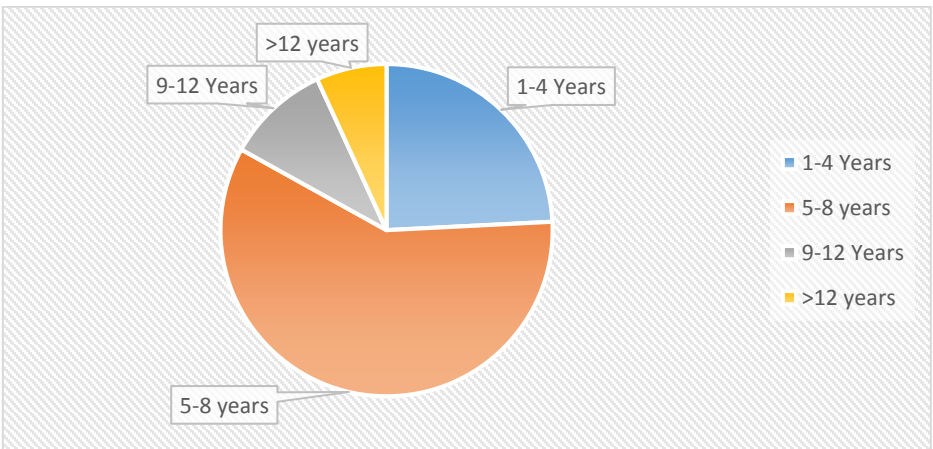
employee were holding below bachelor degree 1(0.4%) and then the employees with a Ph.D. were 3(1.21%).

Figure 4.4: Respondents' Demography (Education Qualification)



Working Experience: The majority of the respondents' working experience in Ministry of Science and Technology ranged 5-8 years with a total number of employee 146 (58.87%, then between 1-4 years with a total number 60 (24.19%) , then 9-12 years 25 (10.08%), finally more than 12 years with a total number of 17 (6.85%). In short words, this indicate that almost 60 % of working experience between 5-8 years.

Figure 4.5: Respondent's Demography (Working Experience).



Position: Most of the respondents' position were technical officer with a total number of 153 (61.69%), then deputy director of the division with a total number of 57 (22.98%), then director general with a total number of 38 (15.32%).

Figure 4.7: Respondents' Demography (Position)

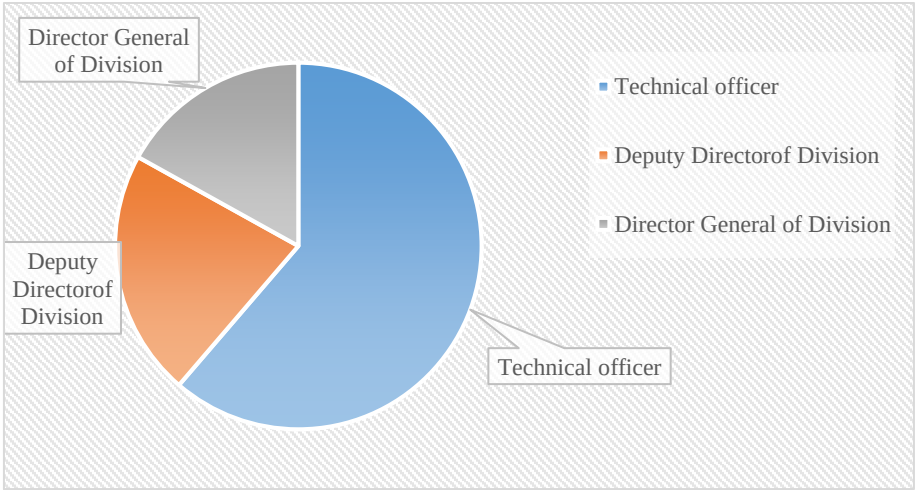


Table 4.1: General Information of the Respondents:

Gender	**Frequency (People)**	**Valid Percent (%)**	**Minimum**	**Maximum**
Male Female Female	157 91	63.31 36.69	1	2
Age				
20-30 31-40 41-50 >51	117 108 21 2	47.18 43.55 8.47 0.81	1	4
Marital Status				
Single Marriage	71 177	28.63 71.37	1	2
Education Qualification				
Lower than Bachelor Master Ph.D.	1 201 43 3	0.40 81.05 17.34 1.21	1	4
Working Experience				
1-4 years 5-8 years 9-12 years More than 12 years	60 146 25 17	24.19 58.87 10.08 6.85	1	4
Position				
Technical Deputy of Division General Director of Division	153 57 38	61.70 23.00 15.30	1	3
Total:	248	100		

Source: Field work,2019

4.1.2 Self-development on the employee level in Ministry of Science and Technology of Lao PDR

Table 4.2: Shows that the majority on the need for self-development of the employee level in Ministry of Science and Technology in Lao PDR. Therefore, the highly level on the need for self-development as training and other area rank as also high level, accepted

administrative, political and public administration and work plan methods as the middle level.

Because of the employees mostly as the technical level and they needs to be upgrading their knowledge and skills by focused on self-development and continuing study at the aboard more than study on political and public administration as to be second choice for them.

Table 4.2: Mean and Standard Deviation for the need of Self-development as following:

No	Self-Development Area	Mean	Std. Deviation	Minimum	Maximum	No. Question	Ranked of Needs
1	Training	4.06	0.31	2.89	4.78	9	High Level (2)
	Administrative	3.34	0.78	2.00	3.40	5	Middle (4)
2	Political and Public Administration	3.11	0.82	1.00	3.22	6	Middle (6)
3	Foreign Language	4.02	0.31	3.00	4.50	4	High Level (3)
4	Information Technology (IT)	4.11	0.46	3.25	5.00	8	The Highest Level (1)
5	Work Plan Methods	3.21	0.65	2.00	3.75	4	Middle (5)
	Total:	3.64	0.55			36	

Source: Field work, 2019

4.1.3 A Result of Pearson's Linear Correlation Coefficients Test.

Table 4.3 shows the result of Pearson's linear correlation coefficient is a tool for testing linear relation between dependent variables, independent variable and control variable as well as possibility of the multinomial logistic regression.

The correlation coefficient between a*ge and gender* variables were found positive sign (0.73) and significant at 1% level of probability means *strong linear relationship* between age and gender variables, when age increase then gender must be increase.

The correlation coefficient between *marital status and gender* variables were found positive sign (0.48) and significant at 1% level of probability means

moderate linear relationship between marital status and gender variables, when marital status increase then the gender must be increase.

The correlation coefficient between *education qualification and gender* variables were found positive sign (0.60) and significant at 1% level of probability means *strong linear relationship* between education qualification and gender variables, when education qualification increases then gender must be increase.

The correlation coefficient between *working experience and gender* variables were found positive sign (0.63) and significant at 1% level of probability means *strong linear relationship* between working experience and gender variables, when working experience increase then gender must be increase.

The correlation coefficient between *position and gender* variables were found negative sign (-0.177) and significant at 1% level of probability means very weak *linear relationship* between position and gender variables, when position increase then gender must be decrease.

The correlation coefficient between *administrative and gender* variables were found positive sign (0.22) and significant at 1% level of probability means *very weak linear relationship* between administrative and gender variables, when administrative increase then gender must be increase.

The correlation coefficient between foreign language *and gender* variables were found positive sign (0.198) and significant at 1% level of probability means *very weak linear relationship* between foreign language and gender variables, when foreign language increase then gender must be increase.

The correlation coefficient between *marital status and age* variables were found positive sign (0.59) and significant at 1 % level of probability means *strong linear relationship* between marital status and age variables, when marital status increase then age must be increase.

The correlation coefficient between *education qualification and age* variables were found positive sign (0.67) and significant at 1% level of probability means *strong linear relationship* between education qualification

and age variables, when education qualification increases then age must be increase.

The correlation coefficient between *working experience and age* variables were found positive sign (0.79) and significant at 1% level of probability means *strong linear relationship* between working experience and age variables, when working experience increase then age must be increase.

The correlation coefficient between *position and age v*ariables were found positive sign (0.19) and significant at 1% level of probability means *very weak linear relationship* between position and age variables, when position increase then age must be increase.

The correlation coefficient between *training and age* variables were found positive sign (0.31) and significant at 1% level of probability means *moderate linear relationship* between training and age variables, when training increase then age must be increase.

The correlation coefficient between *administrative* and *age* variables were found negative sign (-0.22) and significant at 1% level of probability means *very weak linear relationship* between administrative and age variables, when administrative increase then age must be decrease.

The correlation coefficient between *foreign language and age* variables were found negative sign (-0.12) and significant at 5% level of probability means *moderate linear relationship* between foreign language and age variables, when foreign language increase then age must be decrease.

The correlation coefficient between *education qualification and marital status* variables were found positive sign (0.30) and significant at 1 % level of probability means *moderate linear relationship* between qualification and marital status variables, when education qualification increase then marital status must be increase.

The correlation coefficient between *working experience and marital status* were found positive sign (0.67) and significant at 1 % level of probability means *strong linear relationship* between working experience and marital

status variables, when working experience increase then marital status must be increase.

The correlation coefficient between *training and marital status* were found positive sign (0.12) and significant at 5 % level of probability means *very weak linear relationship* between training and marital status variables, when training increase then marital status must be increase.

The correlation coefficient between administrative and marital status were found negative sign (-0.25) and significant at 1 % level of probability means *weak linear relationship* between administrative and marital variables, when administrative increase then marital status must be decrease.

The correlation coefficient between foreign language and marital status variables were found negative sign (-0.25) and significant at 1 % level of probability means *very weak linear relationship* between foreign language and marital status variables, when foreign language increase then marital status must be decrease.

The correlation coefficient between information and technology and marital status were found positive sign (0.21) and significant at 1 % level of probability means *very weak linear relationship* between information and variables, when IT increase then education qualification must be increase.

The correlation coefficient between working experience and education qualification variables were found positive sign (0.78) and significant at 1% level of probability means *strongly linear relationship* between working experience and education qualification, when working experience increase then education qualification must be increase.

The correlation coefficient between position and education qualification variables were found positive sign (0.19) and significant at 1% level of probability means *very weak linear relationship* between position and education qualification variables, when position increase then education must be increase.

The correlation coefficient between administrative and education qualification variables were found positive sign (0.20) and significant at 1 %

level of probability means *very weak linear relationship* between administrative and education qualification variables, when administrative increase then education qualification must be increase.

The correlation coefficient between position and working experience variables were found positive sign (0.16) and significant at 5% level of probability means *very weak linear relationship* between positions and working experience variables, when position increase then working experience must be increase.

The correlation coefficient between administrative and working experience variables were found positive sign (0.24) and significant at 1 % level of probability means *very weak linear relationship* between administrative and working experience variables, when administrative increase then working experience must be increase.

The correlation coefficient between foreign language and working experience variables were found negative sign (-0.14) and significant at 5% level of probability means *very weak linear relationship* between foreign language and working experience, when foreign language increase then working experience must be decrease.

The correlation coefficients between income and position variables were found positive sign (0.77) and significant at 1% level of probability means *very strong linear relationship* between income and position, when income increase then position must be increase.

The correlation coefficients between political and public administration and position variables were found negative sign (-0.14) and significant at 5% level of probability means *very weak linear relationship* between political and public administration and position, when political and public administration increase then position must be decrease.

The correlation coefficients between foreign language and administration variables were found positive sign (0.17) and significant at 1% level of probability means *very weak linear relationship* between foreign

languages and administrative, when foreign language increase then administrative must be increase.

The correlation coefficients between information technology and training variables were found positive sign (0.76) and significant at 1% level of probability means *very strong linear relationship* between information technology and training, when information technology increase then training must be increase.

	Gender	Age	Marital Status	Education Qualification	Working Experience	Position	Income	Training	Administrative	PPA	Foreign language	IT	Work plan Methods
Gender	1												
Age	0.7319**	1											
Marital Status	0.4822**	0.5932**	1										
Education Qualification	0.6051**	0.6752**	0.303**	1									
Working Experience	0.6324**	0.7921**	0.6782**	0.783**	1								
position	-0.1774**	0.1907**	0.1188	0.1963**	0.1617*	1							
Income	0.1026	-0.0451	-0.0705	-0.0183	-0.0574	0.7797**	1						
Training	-0.0588	0.0411	0.1283*	0.0174	0.056	0.0378	-0.0091	1					
Administrative	0.2208**	-0.2207**	-0.259**	-0.2035**	-0.243**	-0.0865	0.0285	0.0197	1				
PPA	0.0792	-0.0671	-0.0463	-0.0621	-0.0807	-0.1411*	0.1113	0.0354	-0.0244	1			
Foreign language	0.1987**	-0.1292*	-0.2537**	-0.0726	-0.1487*	0.0731	-0.0375	-0.0706	0.1723**	0.0083	1		
IT	-0.115	0.1007	0.2134**	0.0218	0.0919	0.0498	0.0136	0.7643**	-0.0071	0.0233	-0.091	1	
Work plan Methods	0.1062	-0.0388	-0.0859	-0.0131	-0.0519	0.005	0.0577	-0.1178	0.0649	-0.0102	0.0562	-0.116	1

Table 4.3: Results of Pearson's Correlation Coefficient Test

Note: * Correlation is significant at 0.05 level

** Correlation is significant at 0.01 level

4.1.4 Multinomial Logistic Regression Model.

We used multinomial logistic regression because our dependent variables are binary variables and more than two categories as the result in these tables below:
H1: If the employee is *a male*, there is higher need of self- development level in training;

Table 4.4 show Multinomial Logistic Regression- training

- *Training*

Training1*: *The need for participant in several of training programs including the country and at the aboard.

(1) The coefficients of Income was found negative and significant influence training1 at ten percent level of probability, implying that the staff who have higher income less likely need training 1;(2) The coefficients of gender was found positive and significant influence training1 at ten percent level of probability, implying that the male staff more likely need training 1; (3). The coefficients of marital status was found negative and significant influence training 1 at one percent level of probability, implying that the staff who got married less likely need training1;(4). The coefficients of working experience was found negative and significant influence training 1 at ten percent level of probability, implying that the staff who have more working experience less likely need training.

Training 2: The need for training programs in (short –long term).

(1)The coefficients of income was found negative and significant influence training 2 at a five percent level of probability, implying that the staff who have higher income less likely need training 2;(2) The coefficients of marital status was found negative and significant influence training 2 at a five percent level of probability, implying that the staff who got married less likely need training 2;(3) The coefficients of working experience was found negative and significant influence training 2 at a ten percent level of probability, implying that the staff who have working experience less likely need training 2;(4) The coefficients of position was found negative and significant influence training 2

at five percent level of probability, implying that staff who have higher position less likely need training 2.

Training 3*: *The need for participant on interested topic.

(1) The coefficients of marital status was found positive and significant training3 at a ten percent level of probability, implying that the staff who got married more likely need training 3;(2) The coefficients of position was found negative and significant influence training 3 at ten percent level of probability, implying that the staff who have higher position likely need training 3.

Training 4. The need for update your specific major at domestic or at the aboard.

1) The coefficients of income was found positive and significant influence training 4 at a ten percent level of probability, implying that the staff who have higher income more likely need training 4;(2) the coefficients of gender was found negative and significant influence training 4 at ten percent level of probability, implying that the male staff less likely need training4; (3) the coefficients of position was found negative and significant influence training 4 at ten percent level of probability, implying that the staff who have higher position less likely need training 4.

Training 5: The need for sharing your information and lessons learn.

1) The coefficients of age was found positive and significant influence training 5 at a ten percent level of probability, implying that the staff who older more likely need training 5;(2) The coefficients of gender was found negative and significant influence training 5 at ten level of probability, implying that the male staff less like need training5;(3) the coefficients of marital status was found positive was found positive and significant influence training 5 at one percent level of probability, implying that the staff who got married more likely need training 5;(4) The coefficients of working experience was found negative and significant influence training 5 at ten percent level of probability, implying that the staff who have more working experience less likely need training 5.

Training 6: The need for participant in a group of human resource development plan.

(1) The coefficients of age was found positive and significant influence training 6 at a ten percent level of probability, implying that the staff who older more likely need training 6;(2) The coefficients of gender was found positive and significant influence training 6 at a one percent of probability, implying that the male staff more likely need training 6;(3) The coefficient of marital status was found negative and significant influence training 6 at ten level of probability, implying that the staff who got married less likely need training 6;(4) the coefficients of marital status was found negative and significant influence training 6 at a ten level of probability, implying that the staff who got married less likely need training.

Training 9: the need for employee's encourage and decision making.

(1)The coefficients of income was found positive and significant training 9 at a ten level of probability, implying that the staff who have higher income more likely need training9; (2) The coefficients of age was found negative and significant influence training 9 at a five percent level of probability, implying that the staff who older less likely need training 9;(3) The coefficient of marital status was found negative and significant influence training 9 at a ten percent level of probability, implying that the staff who have more working experience more likely need training 9; (4) The coefficient of working experience was found positive and significant influence training 9 at a ten percent level of probability, implying that the staff who have higher position less likely need training

Summary, there are male more than female need for self-development on training in 63 percent. Therefore, Log-likelihood estimates of the parameters of Multinomial logistic regression in the Training, the values of the likelihood ratio chi-square =82.09, it is one percent probability level significant, chi-square (P>0.0131) this specifies that this model had identically a good fit.

Table 4.4: Multinomial Logistic Regression – Training

Variables	Training1		Training2		Training3		Training4		Training5		Training6		Training7		Training8		Training9	
	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics
Constant	2.89	0.66	-1.41**	-2.16	0.31	0.08	-2.89	-0.66	5.01	0.97	2.22	-0.28	-36.27	-0.01	13.65	0.01	7.05*	1.27
income (USD)	-9.67*	-1.07	-2.04**	-2.14	-8.84	-0.08	9.67*	1.07	-3.05	-0.30	- 2.92	0.9	1.63	0.92	1.76	0.75	-2.45**	-1.99
Age(years)	0.62	0.87	-0.07	-0.09	0.47	0.81	-0.62	-0.87	2.05*	1.78	0.683*	1.26	0.71	0.62	-15.33	-0.01	- 0.31	-0.37
Gender: Male(dummy)	1.18*	1.26	-0.02	-0.03	0.73*	1.05	-1.18*	-1.26	-1.61*	-1.42	1.14***	-2.82	0.52	0.01	-14.79	-0.01	0.67	0.58
Marital status: Married(dummy)	-2.82***	-3.33	-1.95**	-2.28	-0.65	-0.73	2.82***	3.33	-3.64**	-2.43	-2.65*	-1.29	15.49	0.87	16.23	0.02	-1.50*	-1.49
Education	-0.44	-0.4	-0.63	-0.56	0.47	0.44	0.44	0.04	-1.15	-0.92	-1.85*	1.84	1.16	-0.56	1.89*	1.32	0.02	0.01
Working Experience	0.94*	1.32	1.18*	1.51	0.24	0.29	-0.94*	-1.32	0.26	0.30	1.49	0.08	- 0.64	0.07	-15.41	-0.02	1.07*	1.13
Position	-0.48	-0.69	-1.41**	-2.16	- 0.87*	-1.52	0.48	0.69	-0.37	-0.41	0.07	0.47	0.08	-0.01	2.14	0.87	-1.57**	-1.99
LR chi2(56)	82.09																	
Prob > chi2	0.0131																	
Pseudo R2	0.0895																	
Number of obs	248																	

Note: ***, **, * *significant at 1%, 5%, and 10% respectively*

❖ Administrative

Table 4.5: Multinomial Logistic Regression- Administrative

H2: When the employee is *young*, there is higher need of self- development level in administration.

Administrative 1: The need for create good atmosphere at workplace

(1) The coefficients of marital status was found positive and significant influence administrative at five level of probability, implying that the staff who got married likely need administrative 1; (2). The coefficients of education was found positive and significant influence administrative1 at ten percent level of probability, implying that the education qualification staff more likely need administrative1;(3) The coefficients of working experience was found negative and significant influence training1 at ten level of probability, implying that the staff who got more experience less likely need administrative1;

Administrative 2: Time management

The coefficients of marital status was found positive and significant influence administrative 2 at a five percent level of probability, implying that the staff who got married likely need adminsitrative2

Administrative 3: the need for proper working condition and modern equipment

(1) The coefficients of income was found positive and significant influence administrative3 at a five percent level of probability, implying that who have higher income likely need for proper working condition and modern equipment;(2) the coefficient of gender was found positive and significant influence administrative3 at ten percent level of probability, implying that the male staff more likely need adminstrative3; (3) the coefficients of position was found positive and significant influence adminstrative3 at ten percent level of probability, implying that the who have higher position more likely need administrative 3.

Administrative 4: Team work management

(1) The coefficients of marital status was found negative and significant influence administrative 4 at five percent level of probability, implying that the

staff who got married less likely need administrative 4;(2) the coefficients of education qualification was found negative and significant influence administrative 4 at a ten percent level of probability, implying that the staff who have higher education less likely need adminstrative4; (3) the coefficients of working experience was found negative and significant influence administrative 4 at a ten percent level of probability, implying that the staff who have more working experience less likely need administrative 4.

Administrative 5: The need for upgrade your skill and well cooperation

(1) the coefficients of marital status was found positive and significant influence administrative 5 at ten percent level of probability, implying that the staff who got married more likely need administrative5; (2) the coefficients of education qualification was found positive and significant influence administrative5 at ten percent level of probability, implying that the staff who have higher education qualification more likely need adminsitrative5;(3) the coefficients of working experience was found negative and significant influence administrative 5 at a ten percent level of probability.

Summary, when the age of employee is young, there is also high need for self-development on administrative as 47.18%, The reason for self-development on administrative especially team work management and time management is an importance for self-development because of currently, team work management is not only importance to achievement the organization goals but also creating yourself have good team and connection with co-worker too. Additionally, self-development on time management is very importance to the employees to finish and clear his/ her work in schedule. In consequence, Log-likelihood estimates of the parameters of Multinomial logistic regression in the administrative, the values of the likelihood ratio chi-square =69.68, it is one percent probability level significant, chi-square (P>0.000) these specified that this model had identically a good fit.

Table 4.5: Multinomial Logistic Regression – Administrative

Variables	Administrative 1		Administrative 2		Administrative 3		Administrative 4		Administrative 5	
	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics
Constant	-9.85**	-2.71	-3.22	-0.82	-11.67**	-2.45	9.85**	2.71	-5.56*	-1.32
income (USD)	6.34	0.92	-5.43	-0.67	1.85**	2.41	-6.34	-0.92	1.27	0.15
Age(years)	0.24	0.48	-0.51	-0.88	-0.48	-0.8	-0.24	-0.48	0.50	0.72
Gender: Male(dummy)	-0.06	-0.12	-0.47	-0.78	2.10*	1.91	0.06	0.12	0.61	0.81
Marital status: Married(dummy)	2.38**	2.55	2.20**	2.4	0.60	0.72	-2.38**	-2.55	1.30*	1.24
Education	1.39*	1.71	0.62	0.63	1.30	0.85	-1.39*	-1.71	1.84*	1.56
Working Experience	-0.70*	-1.15	-0.53	-0.69	-0.62	-0.79	0.70*	1.15	-1.82*	-1.88
Position	0.45	0.76	-0.06	-0.11	1.23*	1.91	-0.45	-0.76	-0.11	-0.17
LR chi2(56)	69.68									
Prob > chi2	0.0000									
Pseudo R2	0.0998									
Number of obs	248									

Note:***, **, * *significant at 1%, 5%, and 10% respectively*

❖ Political and Public Administration (PPA)

H3: If the employee is *married*, there is higher need of self- development level in political and public administration.

Table 4.6: Multinomial Logistic Regression-Political and Public Administration.

PPA 1: The need for participant on political meeting

(1) The coefficients of marital status was found negative and significant influence PPA at ten percent level of probability, implying that the staff who got married more likely need PPA1;(2) the coefficients of working experience was found positive and significant influence PPA1 at a ten percent level of probability, implying that the staff who have more experience more likely need PPA1.

PPA 2: The need for learn more on PPA theory

The coefficients of gender was found positive and significant influence PPA2 at ten percent level of probability, implying that the male staff more likely need PP2.

***PPA 4*: *The need for study on PPA theory in short term 45 days*.**

The coefficients of marital status was found positive and significant influence PPA4 at ten percent level of probability, implying that the staff who got married more likely need PPA4.

In summary, if the employee is *marriage status*, there is highly need of self- development level in political and public administration. The reason on the need for self-development on political and public administration because of study on theory of political and public administration, it is government principle which mention that only state employees whose has rights and working position criterion as the middle level until higher level such as the deputy director and so on of any department or division in Ministry or Institution , each one should study and pass the political and public administration system (for the course of 45 days or 5 months) it is the principle for job promotion consideration into Director General or higher level. Accordingly, Log-likelihood estimates of the parameters of Multinomial logistic regression in

political and public administrative, the values of the likelihood ratio chi-square =29.56, it is ten percent probability level significant, chi-square (P>0.3843) these specified that this model had identically not a got fit.

Table 4.6: Multinomial Logistic Regression – Political and Public Administration

Variables	PPA 1		PPA 2		PPA 3		PPA 4		PPA 5		PPA6	
	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics
Constant	-0.75	-0.20	2.79	0.52	0.16	0.04	-0.59	-0.22	1.65	0.27		
income (USD)	-2.35	-0.03	-1.02	-0.9	6.49	0.08	4.14	0.08	-6.69	-0.58	1.63	0.92
Age(years)	-0.35	-0.63	-0.26	-0.28	0.12	0.2	-0.22	-0.5	-0.35	-0.37	0.71	0.62
Gender: Male(dummy)	0.28	0.43	-1.92*	-1.57	0.24	0.32	0.52	0.96	0.20	0.19	0.52	0.02
Marital status: Married(dummy)	0.82*	-1.22	-1.37	-0.99	0.04	0.06	0.78*	-1.38	12.87	0.02	12.49	0.83
Education	-0.73	-0.77	0.15	0.15	0.82	0.79	0.09	0.12	-0.27	-0.13	1.45	-0.53
Working Experience	0.96*	1.56	0.55	0.66	-0.29	-0.46	0.67*	1.32	-12.92	-0.02	-0.55	0.06
Position	0.37	0.58	-0.40	-0.45	-0.55	-0.82	-0.18	-0.42	-0.65	-0.79	0.07	-0.01
LR chi2(56)	29.56											
Prob > chi2	0.3843											
Pseudo R2	0.0476											
Number of obs	248											

*Note: ***, **, * significant at 1%, 5%, and 10% respectively*

❖ Foreign language

H4: If the employee is holding a bachelor *degree*, there is higher need of self-development level in foreign language.

Table 4.7 show Multinomial Logistic Regression- Foreign Language

English Language

(1) the coefficients of age was found negative and significant influence English language at a ten percent level of probability, implying that the staff who older less likely need for English language;(2) the coefficients of gender was found negative and significant influence English language at a ten percent level of probability, implying that the male staff less likely need English language;(3) the coefficients of marital status was found positive and significant influence English language at one percent level of probability, implying that the staff who got married more likely need English language;(4) the coefficients of position was found negative and significant influence English language at ten percent level of probability, implying that the staff higher position less likely the need for self-development in English language.

Vietnamese Language

(1)The coefficients of income was found negative and significant influence Vietnamese language at ten percent level of probability, implying that the higher income less likely need Vietnamese language; 2) the coefficients of gender was found negative and significant influence Vietnamese language at ten percent level of probability, implying that the male staff less likely the need for self-development on Vietnamese language;(3) the coefficients of position was found negative and significant influence Vietnamese language, implying that the staff who have higher position less likely the need for self-development on Vietnamese language.

Chinese Language

The coefficients of gender was found positive and significant influence Chinese language at a ten percent level of probability, implying that the male staff more likely need for self-development on Chinese language.

Other language

The coefficient of marital status was found negative and significant influence other language at a one percent level of probability, implying that the staff who got married less likely need for self-development on other language; (2) the coefficient of position was found positive and significant influence other language at ten percent level of probability, implying that the staff who have higher position more likely need for self-development in other language.

Summary, if the employee is *bachelor degree*, there is not higher need of self-development level in foreign language. For this reason, log-likelihood estimates of the parameters of multinomial logistic regression in the foreign language, the values of the likelihood ratio chi-square =42.83, it is one percent probability level significant, chi-square (P>0.0033) these specified that this model had identically a good fit.

Table 4.7: Multinomial Logistic Regression – Foreign Language

Variables	Foreign language 1		Foreign language 2		Foreign language 3		Foreign language 4	
	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics
Constant	-0.98	-0.34	4.70*	1.24	-4.39*	-1.32	0.98	0.34
income (USD)	-2.14	-0.37	-1.15*	-1.39	5.19	0.77	2.14	0.37
Age(years)	-0.34	-0.79	-0.41	-0.56	0.26	0.51	0.34	0.79
Gender: Male(dummy)	-0.78*	-1.63	-1.62*	-1.93	0.67*	1.03	0.78	1.63
Marital status: Married(dummy)	1.99***	3.09	-0.13	-0.15	0.21	0.32	-1.99***	-3.09
Education	0.32	0.43	0.62	0.67	0.88	0.99	-0.32	-0.43
Working Experience	-0.40	-0.72	-0.10	-0.14	-0.34	-0.59	0.40	0.72
Position	-0.52*	-1.11	-1.34**	-2.21	-0.01	-0.01	0.52*	1.11
LR chi2(56)	42.83							
Prob > chi2	0.0033							
Pseudo R2	0.0686							
Number of obs	248							

*Note: ***, **, * significant at 1%, 5%, and 10% respectively*

❖ Information technology (IT)

H5: when the employee's total *working experience is low*, there is higher need of self- development level in information technology (IT).

Table 4.8: Show Multinomial Logistic Regression-Information Technology (IT).

IT1: The need for basic knowledge of Information Technology

(1) the coefficients of gender was found positive and significant influence information technology at a ten percent level of probability, implying that the male staff more likely need for self-development on information technology;(2) the coefficients of marital status was found negative and significant influence information technology at a one percent level of probability, implying that the staff who got married less likely need for self-development in information technology.

IT2: The need for Information Technology on system development

(1) the coefficients of income was found negative and significant influence information technology at a ten percent level of probability, implying that the staff who have higher income less likely need for self-development on information technology; (2) the coefficients of marital status was found negative and significant influence information technology at five percent level of probability, implying that the staff who got married less likely need for self-development on system development; (3) the coefficients of working experience was found positive and significant influence information at a ten percent level of probability, implying that the staff who have more experience more likely need for self-development on information technology;(4) the coefficient of position was found negative and significant influence information technology at ten percent level of probability, implying that staff who have higher position less likely need for self-development on information technology on the system development.

IT3: The need for artificial intelligence (AI) program development

(1) The coefficients of gender was found positive and significant influence on the need for artificial intelligence (AI) program development at a ten percent level of probability, implying that the male staff more likely need for self-development on the (AI) program development; (2) the coefficients of gender was found negative and significant influence IT3 at a ten percent level of probability, implying that the staff who have higher position less likely need for self-development on AI program development.

IT4: The need for internet of things (IOT) administrative management

(1) The coefficients of gender was found negative and significant influence on the need for artificial intelligence (AI) program development at a ten percent level of probability, implying that the male staff less likely need for self-development on the (AI) program development; (2) the coefficients of marital status was found positive and significant influence IT4 at a one percent level of probability, implying that the staff who got married more likely need for self-development on AI program development.

IT5: The need for information management (big data)

(1) The coefficients of age was found positive and significant influence information technology at a ten percent level of probability, implying that the staff who older more likely need for self-development on information management; (2) the coefficient of gender was found negative and significant influence on the need for information management at a ten percent level of probability, implying that the male staff less likely need for self-development on information management; (3) the coefficients of marital status was found negative influence information technology at a one percent level of probability, implying that the staff who got married less likely need for self-development on information technology.

Training 6: The need for self-development on software

(1) The coefficients of gender was found positive and significant influence information technology at a ten percent level of probability, implying that the male staff more likely need for self-development on software; (2) the

coefficients of marital status was found negative and significant influence information technology at a one percent level of probability, implying that the staff who got married less likely need for self-development on software; (3) the coefficients of education qualification was found negative and significant influence information technology at a ten percent level of probability, implying that the staff who have higher education less likely need for self-development on IT;(4) the coefficient of working experience was found positive and significant influence IT at a ten percent level of probability, implying that the staff have more experience more likely need for self-development on IT.

IT8: The need for management and development on robot

The coefficient of education qualification was found positive and significant influence IT at a ten percent level of probability, implying that the staff who have higher education more likely need for self-development on IT.

Summary, when the employee *working experience is low*, there is higher need of self- development level in information technology (IT). The reason for self-development on information technology become the one of very important instruments in social development and it is driving forces to reach the economic in globalization. Nowadays, it requires the employees should have a basic knowledge of Information Technology (IT) computer programs such as (MS office, Word, Excel, another programs of the Internet of things (IOT), data management (Big data) skills to apply such knowledge to their own work. Therefore, log-likelihood estimates of the parameters of Multinomial logistic regression in the Training, the values of the likelihood ratio chi-square =77.25, it is one percent probability level significant, chi-square (P>0.0062) these specified that this model had identically a good fit.

Table 4.8: Multinomial Logistic Regression – Information Technology

Variables	IT 1		IT 2		IT 3		IT 4		IT 5		IT 6		IT 7		IT 8	
	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics
Constant	1.00	0.24	6.71*	1.61	-1.22	-0.33	-1.01	-0.24	3.51	0.69	0.66	0.14	-36.13	-0.02	11.09	0.01
income (USD)	-5.51	-0.64	-1.71*	-1.85	-2.81	-0.4	5.51	0.64	-2.48	0.00	1.88	0.02	4.35	0.36	1.99	0.85
Age(years)	0.69	0.99	0.01	0.01	0.53	0.91	-0.69	-0.99	2.11*	1.84	0.73	0.98	0.76	0.98	-14.54	-0.02
Gender: Male(dummy)	1.14*	1.24	-0.02	-0.02	0.72*	1.03	-1.14*	-1.24	-1.61*	-1.44	1.11*	1.24	0.50	0.59	-14.06	-0.02
Marital status: Married(dummy)	-2.68***	-3.32	-1.81**	-2.23	-0.46	-0.54	2.68***	3.32	-3.47**	-2.34	-2.36**	-2.7	14.90	0.02	15.56	0.02
Education	0.21	0.19	-0.40	-0.37	0.62	0.59	-0.21	-0.19	-1.02	-0.82	-1.67*	-1.2	1.26	0.96	1.96*	1.37
Working Experience	0.58	0.87	0.82*	1.12	-0.02	-0.02	-0.58	-0.87	0.00	0.01	1.22*	1.58	-0.85	-0.76	-14.81	-0.02
Position	-0.15	-0.22	-1.09*	-1.74	-0.63*	-1.14	0.15	0.22	-0.11	-0.13	0.32	0.39	0.29	0.28	2.32	0.95
LR chi2(56)	77.25															
Prob > chi2	0.0062															
Pseudo R2	0.0920															
Number of obs	248															

*Note: ***, **, * significant at 1%, 5%, and 10% respectively*

❖ Work Plan Methods

H6: If the employee is in *technical position*, there is higher need of self-development in work plan methods.

Table 4.9: Multinomial Logistic Regression- Work Plan Methods

Work Plan Methods 1

(1)The coefficients of income was found positive and significant influence work plan methods at 10 percent level of probability, implying that the staff who have higher income more likely need for self-development on work plan methods; (2) The coefficients of education qualification was found negative and significant influence work plan methods at a ten percent level of probability, implying that staff who have higher education less likely need for self-development on work plan methods; (3) the coefficients was found positive influence IT at a ten percent level of probability, implying that the staff have more working experience more likely need for self-development on IT; (4) the coefficients was found position positive and significant influence work plan methods at a ten percent level of probability, implying that the staff have higher education more likely need for self-development on IT.

Work Plan Methods 2: Evaluation and analysis

(1) The coefficients of gender was found positive and significant influence work plan methods at ten percent level of probability, implying that the male staff more likely need for self-development on work plan methods; (2) The coefficients of working experience was found positive and significant influence work plan methods at a ten percent level of probability, implying that staff who have higher education more likely need for self-development on work plan methods on evaluation and analysis

Work Plan Methods 3: Invention of new innovation

(1)The coefficients of income was found positive and significant influence work plan methods at ten percent level of probability, implying that the staff who have higher income more likely need for self-development on work plan methods; (2) The coefficients of gender was found positive and significant

influence work plan methods at a ten percent level of probability, implying that male staff more likely need for self-development on work plan methods; (3) the coefficients of working experience was found positive influence work plan methods at a ten percent level of probability, implying that the staff have more working experience more likely need for self-development on work plan methods; (4) the coefficients of position was found position positive and significant influence work plan methods at a ten percent level of probability, implying that the staff have higher position more likely need for self-development on work plan methods.

Work Plan Methods 4: Good model

(1) The coefficients of income was found positive and significant influence work plan methods at ten percent level of probability, implying that the staff who have higher income more likely need for self-development on work plan methods; (2) The coefficients of position was found positive and significant influence work plan methods at a ten percent level of probability, implying that the staff who have higher position more likely need for self-development on work plan methods;

Summary, if the employee is *technical position*, there is higher need of self-development in work plan methods. Log-likelihood estimates of the parameters of Multinomial logistic regression in the work plan methods, the values of the likelihood ratio chi-square =26.30, it is ten percent probability level significant, chi-square (P>0.1952) these specified that this model had identically not a good fit.

Table 4.9: Multinomial Logistic Regression – Work Plan Methods

Variables	Work Plan Method 1		Work Plan Method 2		Work Plan Method 3		Work Plan Method 4	
	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics
Constant	-3.77	-0.91	-0.65	-0.15	-4.42*	-1.79	-14.78	-0.70
income (USD)	1.17*	1.39	-0.29	-0.33	8.82*	1.72	4.00*	1.11
Age(years)	-0.09	-0.13	0.33	0.47	0.24	0.61	13.89	0.01
Gender: Male(dummy)	-0.52	-0.76	1.32*	1.83	0.80*	1.73	-0.35	-0.28
Marital status: Married(dummy)	0.05	0.05	-0.34	-0.37	-0.30	-0.58	8.43	0.01
Education	-2.04*	-1.67	1.78*	1.41	-0.26	-0.39	-3.64	-0.43
Working Experience	1.15*	1.41	-0.65	-0.78	0.50*	1.11	-23.03	-0.02
Position	0.84*	1.13	-0.30	-0.39	0.54*	1.31	4.94*	1.22
LR chi2(56)	26.30							
Prob > chi2	0.1952							
Pseudo R2	0.0527							
Number of obs	248							

*Note: ***, **, * significant at 1%, 5%, and 10% respectively*

4.2 Discussion on Major Finding of this Study.

Data will be analyzed using different statistical tools such as Correlation Regression analysis and multinomial logistic regression. Findings will be drawn by answering research questions and analyzing the empirical data presented. The conclusion of this study will reveal whether the need for self-development is there or not. And also to find out whether any relationship exists between demographic factor and the need for self-development (as a training, administrative, political and public administration, foreign language, Information Technology and work plan methods)

These findings were having mean score on the need of training (4.06), administrative (3.34), political and public administration (3.11), foreign language (4.02), Information Technology (4.11), and work plan methods (3.21). Though, the item mean score of Information Technology was the highest mean score, together with training and foreign language was high level on the need for self-development too. Whereas political and public administration got the low mean score.

In summary, the result show that:

-Training: Log-likelihood estimates of the parameters of multinomial logistic regression in the work plan methods, the values of the likelihood ratio chi-square =26.30, it is ten percent probability level significant, chi-square (P>0.1952) these specified that this model had identically not a good fit.

- Administrative: Log-likelihood estimates of the parameters of multinomial logistic regression in the administrative, the values of the likelihood ratio chi-square =69.68, it is one percent probability level significant, chi-square (P>0.000) these specified that this model had identically a good fit.

- Political and Public Administrative: Log-likelihood estimates of the parameters of multinomial logistic regression in political and public administrative, the values of the likelihood ratio chi-square =29.56, it is ten percent probability level significant, chi-square (P>0.3843) these specified that this model had identically not a good fit.

- Foreign Language: Log-likelihood estimates of the parameters of multinomial logistic regression in the foreign language, the values of the likelihood ratio chi-square =42.83, it is one percent probability level significant, chi-square (P>0.0033) these specified that this model had identically a good fit.
- Information Technology: Log-likelihood estimates of the parameters of Multinomial logistic regression in the information technology, the values of the likelihood ratio chi-square =77.25, it is one percent probability level significant, chi-square (P>0.0062) these specified that this model had identically good fit.
- Work Plan Methods: Log-likelihood estimates of the parameters of Multinomial logistic regression in the work plan methods, the values of the likelihood ratio chi-square =26.30, it is ten percent probability level significant, chi-square (P>0.1952) these specified that this model had identically not a good fit.

In this study referred (Nadler L., 1980) theory which mention that human resource development as a means of bringing development activities to human resources or staff within the organization and which influence behavioral change. This should be benchmark of framework for helping employee develop their knowledge, skill, abilities. Also HRD is management of activities that attract, and maintain the ability of a person or employee to perform their tasks effectively in organization, including corporate excellence by combining of needs, prosperity and the main development as personal development within the organization. Though the three aspects such as: training, education and development. And also referred to (Bacharach, 1997) theory that mention that human resource development referred by four aspects such as: capacity, equality, empowerment and sustainability.

Chapter V: Conclusion and Recommendation

5.1 Conclusion.

For the study, the conclusion was made that, the need for self-development on employee within the Ministry of Science and Technology, there are three main objects; (1) to measure the need for self-development level of employee; (2) to examine the relationship between the demographic factor and the need on self-development on the employee in Ministry of Science and Technology; (3) to compare opinion of employee related to the need of self-development of employee in Ministry of Science and Technology base on the demographic factors.

5.1.1 General Information of the Respondents.

The result show that most of respondents were male 157 people which (63.31%), most were in the age between 20-30 years old 117 people (47.18%), majority of employees were married 177 people (71.37%), most of their education qualifications were bachelor degrees 201 people (81.05%), most of the working experiences were between 5-8 years 146 people (58.87%). And most positions was technical officer 152 people (63.30%).

The study found that the need for self-development of employee in MOST as a whole was at the highest level (average 3.64). While considering the individual aspects, the study found that the need for self-development in information technology was at the highest level (average 4.11), then, training was at a higher level (average 4.06) and foreign language was at a high level (average 4.02). On the other hand, administrative, political and public administration and work plan methods were at middle levels.

5.1.2 Summary.

Without doubt, there is a need for self-development on the employees of Ministry of Science and Technology in Lao PDR. There is a gap which was mentioned in the background and that was the purpose of the study. This is evident by using the existing literature review in the full rank of self-development - the concept of demand and theory, Maslow's Hierarchy needs, McClelland's theory, Claton Elderfer's ERG theory and Nadler theory. What subject are the most required for the self-development need in Ministry of Science and Technology?; Is there any relationships between the demographic factor (as gender, age, marital status, working experience, position) and self-development (training, administrative, political and public administration, foreign language, information and work plan methods) in Ministry of Science and Technology?; What are the perception of employee to develop self-development among the employees of ministry of Science and Technology? These were the main research questions for this study. In order to answer these research questions, selection was done on the literature reviews on the need for self-development theory and concept to find the gap. In this study, there are six hypothesis to verify the need for self-development on employee. This target population of this study, there were eight (8) departments, four (4) Institutions and two (2) offices with total 248 sample.

The result on multinomial logistic regression is as bellows:

- Training: Log-likelihood estimates of the parameters of multinomial logistic regression in the Training, the values of the likelihood ratio chi-square =82.09, it is one percent probability level significant, chi-square (P>0.0131) these specified that this model had identically a good fit.

Traditionally, In Lao people think male tend to train more than female but this paper shows that female tend to train more than male. This means that a family support more male, so male has higher educational background than woman. That might be the reason that government trains more female than male.

The apparent reason for self-development on training because of most employees are young, and their age between 20-30 years and 31-40 years were of high level need to gain their knowledge, skills and competency by participating in various of training programs including within the country and aboard (short – long term) training programs which was related to his/her responsibility and organization. As well as the employees also need to participant in a group/committee of human resource development plan in the organization.

- Administrative: Log-likelihood estimates of the parameters of multinomial logistic regression in the administrative, the values of the likelihood ratio chi-square =69.68, it is one percent probability level significant, chi-square (P>0.000) these specified that this model had identically a good fit.

The reason for self-development on administration because of most employees are young, and their age between 20-30 years and 31-40 years were high level need to gain their knowledge, skills and competency. Because of current policy, team work management is not only important to achieve the organizational goals but also creating themselves with good team work and connection with co-worker too. Additionally, self-development on time management is very important to the employees to finish and clear his/ her work in a limited schedule.

- Political and Public Administration: Log-likelihood estimates of the parameters of Multinomial logistic regression in political and public administrative, the values of the likelihood ratio chi-square =29.56, it is ten percent probability level significant, chi-square (P>0.3843) these specified that this model had identically not a good fit.
- Foreign Language: Log-likelihood estimates of the parameters of multinomial logistic regression in the foreign language, the values of the likelihood ratio chi-square =42.83, it is one percent probability level significant, chi-square (P>0.0033) these specified that this model had identically a good fit.

The reason for self-development on foreign language especially English is an international language, the employees were able to put themselves as part of their quality of education. The qualification can support their working performance efficiency and well coordinate with international partnership, institutions and other agencies.

- Information Technology: Log-likelihood estimates of the parameters of Multinomial logistic regression in the information technology, the values of the likelihood ratio chi-square =77.25, it is one percent probability level significant, chi-square (P>0.0062) these specified that this model had identically a good fit.

The reason for self-development on information technology becomes one of very important instruments in social development and it is driving force to reach the desired economic growth in globalization. Nowadays, it requires that the employees should have a basic knowledge of Information Technology (IT) computer programs such as (MS office, Word, Excel and another programs of the Internet of things (IOT), data management (Big data) skills and need to apply such knowledge to their own work.

Traditionally, Lao people think if the employees working experience is low, then they need more self- development than the employees who had more working experience. This paper shows that the experienced employees were more in need of self development. This means that they need to learn more on the specific area of their main responsibility, in order to understand more on organizational policy, principle and long term strategy plan. On the other hand, this means that they have good background and experience from the previous job in that organization that can become guidelines to them. That might be the reason that government give priority to senior staff for sharing information, experience and lesson learnt to guide the the juniors in the organization;

- Work Plan Methods: Log-likelihood estimates of the parameters of multinomial logistic regression in the work plan methods, the values of the likelihood ratio chi-square =26.30, it is ten percent probability level significant,

chi-square (P>0.1952) these specified that this model had identically not a good fit.

Traditionally, Lao people think the employees in a technical position need more self- development than the employees who were in deputy director or general director position. This paper shows that the employees who were in deputy director and director general position have more need for self-development. This means that they need to learn more on the specific area on the main responsibility, in order to understand more on organizational policy, principle and long-term strategy plan. On the other hand, this means that they have quality education and benchmark knowledge. This is necessary to lead and prepare work plan guideline for organization through to participate on training, learn more on theories on political and public administration and information technology.

5.2 Recommendation.

In this study, the need on self-development is established to make the employee able to strengthen the capabilities of individual performance. It is required not only for human resource development but also to obtain organizational achievement goals together. The conclusion is as follows: (1) to conduct a comparative study on the need for self-development in the central government and local government; (2) Purpose this project proposal submission to department of personnel and organization for budget provisions which aim to set up the required training program for the right programs and best fit to the employees; (3) Self-development still refers to own personal resources, therefore, the organizations should provide a short term training program by following to their needs for self-development. Further, the employees should be motivated to improve themselves or encourage to apply for international scholarship, which are available from many donors around the world: the aboard; (4) Support Science and Technology Management Institution to organize training course for Information Technology (IT) and English language in their work plan schedule; (5) sharing information,

experience and lesson learn from the senior also good methods for junior employee learning. Thereafter, Department of personnel and organization of (MOST) should be delegated to prepare all training for the purposed of improvement of employee skills, knowledge, abilities, including making a good environment and the atmosphere within the organization in mutual trust. In order to make work more efficient, organizations must support staff upgrades as part of organizational development. Furthermore, all organizations should have a recruitment and selection system that is more suitable for the job and then develop more personnel to enable the staff to work more effectively by evaluating on employee performance.

5.3 Limitation

In this study, the limitation on this study are as follows: (1) mine interpretation; (2) respondent might not be experienced, but marked; (3) administrative management is not clearly objective of the government; (4) there could be limitation for the employee who has different major background of Information technology (IT) especially for Internet of Things (IOT), data management (Big data); and foreign language including English language, Vietnamese language and Chinese language and etc.

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Appendix 1:

Questionnaire

Human Resource Development: A study on the need for self-development of the employee in Ministry of Science and Technology of Laos

1) Survey Questions

The following questions are asked for your perspectives on the need for self-development of the employee in Ministry of Science and Technology of Laos. You can answer them either with Lao or English language. The information you give will be kept confidentially. So, please freely participate in this test. Participation in this test will highly appreciate to you.

SECTION A – PERSONAL DETAILS

Please tick where appropriate [✓]

1. Gender: (a) M ( ) (b) F ( )
2. Age: (a) 20-30 ( ) (b) 31-40 ( ) (c) 41-50 ( ) (d) more than 51( )
3. Marital Status: Single ( ) married ( )
4. Education Qualification:…..……

Below bachelor degree ( ) Bachelor Degree ( ) Master's Degree ( ) Ph.D. ( )

5. Working Experience:1- 5 years ( ) 6-10 years ( ) 11- 15 years and above( )
6. Position/ Rank: …….....

General Director of	( )
Deputy Director	( )
Technical	( )

Key

1. Strongly Disagree; 2. Agree; 3. Neutral; 4. Disagree; 5. Strongly Agree

SECTION B

Use tick where appropriate [✓] please indicate whether you strongly agree (SA), agree (A), Neutral (N), disagree (D) or strongly disagree (SD), to the

various statement regarding the need of Self-development of the employee in ministry of science and technology in Lao PDR.

No	Description	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
Training						
1	The need for participant in various of training programs including domestic and at the aboard (short- term) which related to your work responsible					
2	The need for participant in any training programs which related to your organization (short- term)					
3	The need for participant of interested topic even if it is not related to your task and organization, it is only increase your knowledge.					
4	The need for updated your specific major at domestic or at the aboard (higher level)					
5	The need for sharing your information and lessons learnt within internal and external organization					
6	The need for participant in a group of human resource development plan in your organization					
7	The need for all the times development his/her skill by reading various of books, internet sources and etc.					
8	The need for obtain information which related to training programs within the ministry					

9	The need for employee's encourage for self-development in decision making and self-expression					
	Administrative					
10	The need to create good atmosphere at work in order to work together with co-worker					
11	The need of self-development on time management					
12	The need for proper working condition and modern equipment					
13	The need for team work management					
14	The need for upgrade your skill and well cooperation with foreign relation tasks.					
	Political and Public Administration					
15	The need for participant on political meeting					
16	Find out and Lean more about theory and related documents					
17	The need for deeply understand of regulation and theories on political and public administration					
18	The need for study on the theory of political and public administration in a short term (45 days)					
19	The need for study on theory of political and public administration in middle term (5 months)					
20	The need for study on theory of political and public administration for long term (higher level or bachelor level					

Foreign Language						
21	English Language					
22	Vietnamese Language					
23	Chinese Language					
24	Other Language					
Information Technology (IT)						
25	The need for basic knowledge of Information Technology (IT) computer programs (MS office, Word, Excel, and other programs)					
26	The need for Information Technology (IT) research on system development					
27	The need for artificial intelligence (AI) program development					
28	The need for Internet of thing (IOT) administration management					
29	The need for self-development on software					
30	The need for self-development on computer and electronic maintenance					
31	The need for management and development on robot					
Work Plan method						
32	The need for lesson learned from previous work experience in order for improve employee performance					
33	The need for personal development in particularly of sharing their own idea in order to improve the organization					
34	The need for evaluation and analysis of the organization and develop personnel weakness					

35	The need for self-development by invention of new innovation which appropriate of your responsibilities					
36	The need for good model for coworker in scientific research					

SECTION C

An Opening Question

1. Do you have any future plan for self –development on employee in Ministry of Science and Technology of Lao PDR?

……

……

……

Thank you

Abstract in Korean

인적자원개발:

라오스 과학기술부 공무원의 자기개발 필요성에 관한 연구

Manivone Inthavong

서울대학교 행정대학원

글로벌행정전공

본 연구의 목적은 과학기술부(MOST)에 종사하는 공무원의 자기개발 필요성을 확인하는 것이며 3가지 목표를 두고 있다: (1)과학기술부 공무원의 자기개발 수준 측정 (2) 과학기술부 공무원에 대한 인구통계적 요인과 자기개발 필요성 사이의 관계 분석 (3) 과학기술부 공무원의 자기개발 필요성과 관련된 공무원의 의견을 인구통계학적 요인을 기반으로 비교. 과학기술부 공무원 248명으로부터 1차 데이터를 수집하기 위해 양적 연구와 설문지가 사용되었다.

응답자 특징으로, 남성이 157명으로 63.31%를, 20-30세 사이가 117명으로 47.18%를 차지했다. 기혼자는 71.37%에 해당하는 177명, 대학 졸업자는 81.05%에 해당하는 201명, 5-8세 사이의 근무 경험은 58.87%에 해당하는 146명이었고 직급은 기술관 152명으로 63.30%를 차지했다.

분석 결과 과학기술부 공무원의 자기개발 필요성이 높은 수준(평균 3.64)인 것으로 조사됐다. 개별적인 측면으로 볼 때, 정보기술에서의 자기개발 필요성이 첫 번째(평균 4.11)였고, 훈련(평균 4.06), 외국어(평균 4.02)가 그 뒤를 이었다. 반면 행정, 정치, 공공행정, 업무계획 방식은 중간 수준이었다. 본 연구는 Leonard(1980)에 근거한 인적자원개발 이론과 로지스틱 회귀분석을 활용했고 추정량으로는 최대우도추정량을 사용했다. 이러한 연구 결과, 정보기술, 훈련, 외국어, 행정은 우도비 카이제곱 검정 결과 1% 유의수준에서 유의미했고, 정치 및 공공 행정, 작업 계획 방법은 p-value 값이 0.195로 유의수준 10%하에서 유의미하지 않았다.

정보기술의 경우, 기술의 급격한 발전으로 4차 산업혁명이 도래하고 있는 만큼 현장에서 공무원의 정보기술 능력 수요가 그만큼 증가하고 있다. 이는 직장과 생산 과정, 무역과 서비스에 최신 기술을 적용해야

한다는 것을 의미한다. 따라서 모든 관련 공무원은 장기 및 단기 계획에 따라 다른 선진국과 동등한 수준으로 지속적인 기술 교육을 받아야 한다. IT분야 및 조직·사회발전은 물론 외국어에서도 자기개발과 연수의 필요성이 요구된다는 점을 강조할 필요가 있다.

주제어: 인적자원개발, 자기개발, 학습
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